

# PROCEEDINGS

of the

## American Society of Civil Engineers

INSTITUTED 1852

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MARCH, 1930

No. 3

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### CONTENTS

Society Affairs.....	Page	55
Applications for Admission and Transfer.....	Page	67
Papers, Reports, Discussions and Memoirs.....	Page	405

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## SOCIETY AFFAIRS

### CONTENTS

#### Items of Interest:

	PAGE
Functional Expansion: An Enlarged Program.....	55
Annual Business Meeting of the Society, January 15, 1930.....	63
Business Meetings of Technical Divisions, January 16, 1930.....	64
Minutes of Meetings of the Board of Direction, January 13, 14, and 16, 1930.....	66
Minutes of Meeting of the Executive Committee, January 16, 1930.....	70

#### Local Sections:

Buffalo .....	71
Cleveland .....	71
District of Columbia .....	71
Illinois .....	71
Kansas (State) .....	71
Miami .....	71
Mid-South .....	71
Milwaukee .....	72
Nashville .....	72
Nebraska and Iowa .....	72
Northeastern .....	72
Northwestern .....	72
Philadelphia .....	73
Rochester .....	73
Sacramento .....	73
San Diego .....	74
San Francisco .....	74
Tacoma .....	74
Virginia .....	74
Western Washington .....	74

#### Annual Reports:

Of the Board of Direction .....	75
Of the Secretary .....	92
Of the Treasurer .....	96
Of the Technical Divisions .....	97

Engineering Societies Library .....	102
-------------------------------------	-----

Current Civil Engineering Literature .....	104
--	-----

Employment Service .....	112
--------------------------	-----

Membership .....	115
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# AMERICAN SOCIETY OF CIVIL ENGINEERS

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## PROCEEDINGS

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### SOCIETY AFFAIRS

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#### FUNCTIONAL EXPANSION AN ENLARGED PROGRAM\*

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##### Report of Committee to Board of Direction

In addition to the functions of a technical character which the Society has performed throughout its seventy-seven years of existence, it is proposed that the Society enter upon an expansional program to embrace, as a definite objective equally to be furthered, those functions that in distinction may be called professional in character.

Your Committee believes that the time has come for the whole-hearted acceptance by the Society of that obligation and for the adoption of a systematized program designed to enhance the status of the civil engineer in the minds of his public.

Just as the technical work of the Society has been performed by the individual members, in the discussion of papers, by work upon committees, in addressing meetings, and in almost endless ways so the actual work incident to the professional functions which are to be performed must be done by individual members. The Society may devise the method and furnish the funds. The members must be looked to for the actual work.

There are many indisputable and undoubted indications of a very warm loyalty on the part of the membership to the Society. Instances upon instances evidence a strong desire on the part of individual members for the opportunity to serve in some line or another, in some degree or another. To make a larger use of this loyalty; of this willingness to serve; of this hitherto unused, or insufficiently used, capacity to serve; the Functional Expansion Program proposes a scheme of ramified organization; designed to afford opportunities for a large participation by the membership in its administration and in the carrying out of new activities.

The Program proposes three Departments of Society organization: Technical, Administrative, and Professional. Under each department are proposed units composed of Society members and which by indicated sub-committees or contact members permit extension to interested individuals throughout the membership of the Society.

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\* This report was adopted by the Board of Direction on January 13, 1930.

The technical functions of the Society are well performed through the medium of Society committees and the Technical Divisions. No change is proposed in them.

With respect to such functions as the Society has performed toward its Local Sections, its Student Chapters, its younger or Junior members, these have been performed by the Board of Direction together with its other many administrative duties. It is proposed that these now be delegated to committees composed of members selected especially for their capacity and interest in these several functions.

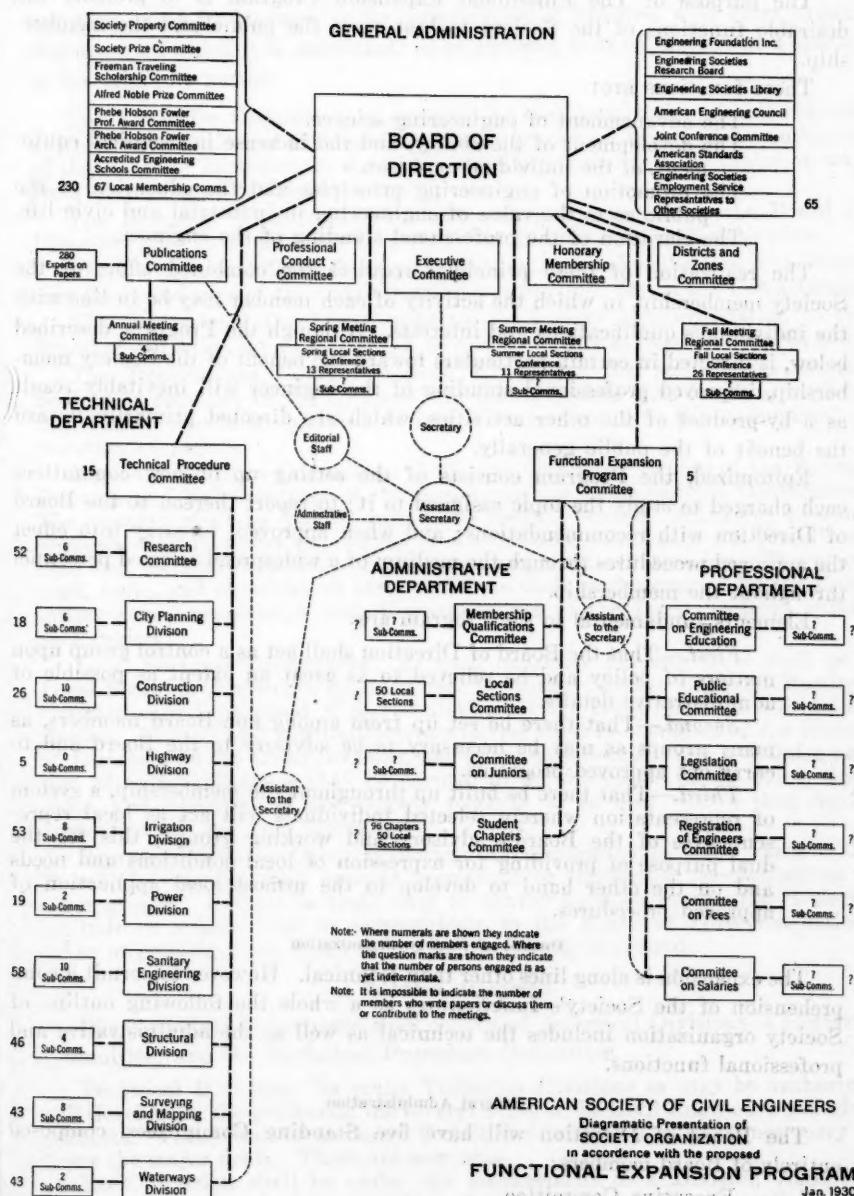
With respect to the professional functions to be performed, it is proposed that there be created certain new committees each charged with the development of specified phases of the professional life of a civil engineer and that they and the existing committees dealing with similar subjects be systematically supplemented by such sub-committees or individuals in each Local Section and throughout the entire country, and possibly other countries, that an effective co-operative unity of the membership may be made operative upon determined proposals or endeavors.

The program provides at once for the extension to members of an increased participation in Society affairs and for the development of that participation definitely along non-technical or professional lines.

To what extent the professional lines are to be developed is a matter for the future to determine. The Functional Expansion Program provides a definite start. It will embrace a committee charged with the study of the salaries paid civil engineers and the type of service properly to be expected of them for these salaries. It will include a committee charged with the continued study of an equitable and adequate system of fees to be charged for specific duties. It proposes a committee charged with the duty of bringing the diverse State laws relative to the registration of engineers into as uniform and satisfactory condition as practicable; it charges a committee to concern itself with engineering education; it charges a committee with being alert in the matter of legislation, other than registration, and to advise the Board promptly on needful decisions or actions; it charges a committee with devising proper ways and methods for calling attention to the value of the civil engineer in the economic situation of the day. In brief, it is a systematic program by the group to understand its own economic status and where proper and practicable to put into process such remedies as may be devised.

It is not to be expected that the individual civil engineer will continue to do other than be neglectful of self in his devotion to his daily problems. In consequence he may expect to attain his true economic status only as by group action he takes thought of that status and such remedial measures as may become apparent.

Your Committee recommends the adoption of The Functional Expansion Program in its entirety as a procedure providing a dual opportunity and a dual obligation; namely, the mobilization of the special capacities and interests of Society members and the application of these increased facilities to the professional problems of the Civil Engineer.



AMERICAN SOCIETY OF CIVIL ENGINEERS

## Diagrammatic Presentation of SOCIETY ORGANIZATION

#### **SOCIETY ORGANIZATION**

## FUNCTIONAL EXPANSION PROGRAM

JAN. 1930

### Outline of Program

The purpose of The Functional Expansion Program is to promote the desirable functions of the Society to best serve the public and the membership.

These functions are:

- The advancement of engineering science.
- The development of the ability, and the increase in technical equipment, of the individual engineer.
- The promotion of engineering principles and the education of the public as to the value of engineering in industrial and civic life.
- The elevation of the professional standing of the engineer.

The realization of these principles requires the combined effort of the Society membership, in which the activity of each member may be in line with the individual's qualifications and interests. Although the Program, described below, is directed in certain particulars toward the benefit of the Society membership, improved professional standing of the engineer will inevitably result as a by-product of the other activities, which are directed primarily toward the benefit of the public generally.

Epitomized, the Program consists of the setting up of new committees each charged to study the topic assigned to it; to report thereon to the Board of Direction with recommendations; and when approved, to carry into effect the approved procedures through the medium of a widespread selected personnel throughout the membership.

Elements fundamental to the Program are:

*First.*—That the Board of Direction shall act as a control group upon matters of policy and be relieved to as great an extent as possible of administrative details.

*Second.*—That there be set up from among non-Board members, as many groups as may be necessary to be advisory to the Board and to carry out approved programs.

*Third.*—That there be built up throughout the membership, a system of representation wherein selected individuals will act as local representatives of the Board's advisory and working groups; this for the dual purpose of providing for expression of local conditions and needs and on the other hand to develop to the utmost local application of approved procedures.

### Outline of Society Organization

The expansion is along lines other than technical. However to permit a comprehension of the Society's functioning as a whole the following outline of Society organization includes the technical as well as the administrative and professional functions.

#### General Administration

The Board of Direction will have five Standing Committees, composed entirely of Board members:

- Executive Committee
- Honorary Membership Committee
- Districts and Zones Committee
- Professional Conduct Committee
- Publications Committee

It will have among its own members or appoint from outside its membership such other permanent or temporary committees as will facilitate the carrying on of its business or the carrying on of business with other organizations with which it is associated; or as advisory to it on matters of a special or investigatory nature:

The Executive Committee, as provided by the Constitution, "shall exercise at times when the Board of Direction is not in session such part of the authority of the Board of Direction in the administration of the Society's affairs as may from time to time be delegated to it."

The Honorary Membership Committee shall recommend to the Board of Direction such candidates for Honorary Membership as it shall determine.

The Districts and Zones Committee shall recommend to the Board of Direction the boundaries of the districts and zones provided for in the Constitution.

The Professional Conduct Committee shall make recommendation to the Board of Direction on all matters of an ethical nature as shall be referred to it.

The Publications Committee shall administer the publications of the Society as provided in the By-Laws. It shall associate with itself, as experts, individuals especially qualified to advise with respect to the acceptance or rejection of papers.

Regional Meetings Committees shall have immediate charge of the Spring, Summer and Fall Meetings of the Society and of Local Section Conferences. The country shall be divided into three regions each of which for meeting purposes shall be under the control of a committee consisting of a Vice-President and the Directors of the Society resident within that region. The place, time, topic, and character of these meetings shall be determined by the Committee after consultation with Representatives of the Local Sections within each region.

Local Sections Conferences: At each quarterly meeting there shall be a Local Sections Conference presided over by the appropriate Regional Meetings Committee and composed of representatives of the Local Sections within that Region. These Local Section Representatives shall be members of the Boards of Directors of the Local Sections, one from each Section, and a definite portion of each Conference shall be devoted to the discussion of the place, time, topic, and character of the Society meeting to be held within that region approximately one year thereafter.

Representatives to Other Societies: As circumstances may warrant the Board of Direction shall appoint permanent or temporary representatives to other groups. It shall be their duty to convey to those groups the Society's attitude or interest and to communicate to the Board of Direction actions taken or procedures on which action by the Society is desired.

#### Technical Department

The Technical Department shall consist of Technical Divisions, a Research Committee, and the Technical Procedure Committee.

Technical Divisions: So many Technical Divisions as may be authorized will develop for the profession the several fields of the Civil Engineer's technical pursuits. There shall be as many Technical Divisions as may be necessary to cover the major fields. There are now nine.

Each Division shall be under the management of a Division Executive Committee composed of five members of the Society who have enrolled themselves as members of the Division. The terms of the Executive Committee members shall be five years, one to cease annually. There shall be a Chairman and Vice-Chairman.

It shall be the duty of the Technical Division Executive Committees, each for its own technical field, to arrange technical sessions at the Society's meetings and to appoint and supervise committees set up for administration of the Division and for technical and research purposes. All Division committees other than administrative committees shall be under obligation to cause their work to result in written reports of such quality as to warrant inclusion in the Society's publications.

The Research Committee shall be advisory to the Board of Direction on matters of a major research character as to program and personnel and be supervisory of such special research committees as are authorized and assigned to it. It shall consist of one Board member appointed annually and of four non-Board members each appointed for four years, so that one membership will cease annually. It shall have a Chairman and Vice-Chairman appointed by the Board of Direction.

The Technical Procedure Committee shall co-ordinate the technical activities of the Society. It shall consist of the Chairmen of the several Divisions; the Research Committee, the Publications Committee, two members of the Board of Direction, the President and the Secretary of the Society. Its meetings shall be held at the time and place of the Spring and Fall Meetings of the Society.

#### Administrative Department

The Administrative Department will be composed of several units. In general each unit or committee will consist of one Board Member appointed for one year and of four non-Board members appointed at the outset for terms of one, two, three, and four years, respectively, and thereafter for 4-year terms. Each committee shall have a Chairman and a Vice-Chairman appointed by the Board. Each committee shall act as advisory to the Board and as the administrative agent of the Board with respect to approved plans.

So far as authorized each committee shall set up sub-committee groups or individuals to act as local representatives throughout the United States, such representatives to be designated by the Board of Directors of the Local Sections.

For the present the Administrative Department will be composed of the following committees:

- Membership Qualifications Committee.
- Local Sections Committee.
- Committee on Juniors.
- Student Chapters Committee.

The Membership Qualifications Committee shall review all applications for admission and transfer and report thereon to the Board of Direction in accordance with Rules prepared by the Board.

The Local Sections Committee shall recommend to the Board of Direction and upon approval shall put into effect, methods and procedures calculated to be of value to the members of the Society resident in a given community and organized or capable of being organized into a Local Section; to think in terms of the needs and opportunities of the Local Sections and to assist them in all practicable ways.

The Committee on Juniors shall recommend to the Board of Direction and upon approval shall put into effect methods and procedures calculated to be of value to the Junior members of the Society; to think in terms of their needs and opportunities and to assist them in all practicable ways.

The Student Chapters Committee shall recommend to the Board of Direction and upon approval shall put into effect, methods and procedures calculated to be of value to the student in Civil Engineering; to think in terms of the needs and opportunities of Student Chapters. To make recommendations to the Board with respect to new Student Chapters.

#### Professional Department

The Professional Department will be composed of several units. In general each unit or committee will consist of one Board Member appointed for one year and of four non-Board members appointed at the outset for terms of one, two, three and four years, respectively, and thereafter for 4-year terms. Each committee shall have a Chairman and a Vice-Chairman appointed by the Board. Each committee shall act as advisory to the Board and as the administrative agent of the Board with respect to approved plans.

So far as authorized each committee shall set up sub-committee groups or individuals to act as local representatives throughout the United States, such representatives to be designated by the Board of Directors of the Local Sections.

For the present the Professional Department will be composed of the following committees.

Committee on Engineering Education.  
Public Educational Committee.  
Legislation Committee.  
Registration of Engineers Committee.  
Committee on Fees.  
Committee on Salaries.

The Committee on Engineering Education shall recommend to the Board of Direction, and upon approval shall put into effect methods and procedures calculated to be of value in engineering education; to co-operate with other similar committees or societies and in all practical ways to bring the engineering schools and the professional engineer closer together.

The Public Educational Committee shall recommend to the Board of Direction and upon approval shall put into effect methods and procedures calculated to acquaint the general public with notable achievements in engineering; the advantages of applying engineering principles to industrial and civic problems; and the necessity of placing the administration of engineering matters in the hands of men of suitable qualifications and experience. Such educational work shall be carried on at all times in a manner consistent with the dignity of the Society.

The Legislation Committee shall recommend to the Board of Direction such action as is deemed advisable with respect to legislation contemplated or in process, an engineering analysis of which will be calculated to be of help in the determination of a solution beneficial to the public. This Committee should have sub-committees in every State Capital and in Washington, and upon approval of plans shall see that approved procedures are put into effect.

The Registration of Engineers Committee shall recommend to the Board of Direction methods and procedures calculated to be of assistance to the authorized official engineer-registration boards in their efforts to administer the laws and the correction and strengthening of these laws. This Committee should have sub-committees in every Local Section and upon approval of plans shall see that approved procedures are put into effect.

The Committee on Fees shall collect, codify, and prepare for distribution such data as may be calculated to be of value to the professional civil engineer in the determination of a fee for his services, which fee shall be commensurate with the value of his services, adequate to permit of proper treatment of his problem, and fair to his client, to the other members of his profession, and to himself and those engineers in his employ. It shall also recommend to the Board of Direction methods and procedures calculated to be of assistance in the matter of fees and upon approval of plans shall see that approved procedures are put into effect. It shall also determine questions upon fees when requested.

The Committee on Salaries shall collect, codify, and prepare for distribution such data as may be calculated to be of value to the professional civil engineer and the municipalities or corporations by which he is employed in connection with the proper classifications of responsibility properly to be expected of him and the equitable compensation to him for his services. It shall also recommend to the Board of Direction methods and procedures calculated to be of assistance in the matter of salaries and upon approval of plans shall see that approved procedures are put into effect. It shall also organize so as to be of practical assistance when called upon in the adjustment of disputes arising out of classifications or salaries.

A. J. HAMMOND, *Chairman.*  
LINCOLN BUSH,  
J. F. COLEMAN,  
A. J. DYER,  
H. P. EDDY,  
*Committee.*

December 18, 1929.

#### SOCIETY BUSINESS MEETING, MARCH 19, 1930

A regular business meeting of the Society will be held on the Fifth Floor, Engineering Societies Building, on the evening of March 19th, 1930, at 8:00 p. m. The purpose of this meeting is to canvass ballots for amendments to the Constitution.

This announcement is to comply with the requirement of the By-Laws in giving fifteen days official notice of the meeting and its purpose.

## Annual Business Meeting of the Society

### Morning Session

The Seventy-seventh Annual Meeting of the Society was called to order at 10:15 A. M., President Anson Marston presiding. Immediately after the reading of the annual reports of the Board of Direction,\* the Secretary,† and the Treasurer,‡ the candidates for Honorary Membership were called to the platform.

The first to be introduced was Edwin Augustus Fisher, M. Am. Soc. C. E., presented by John F. Skinner, M. Am. Soc. C. E. The next candidate for honors was Gustav Lindenthal, M. Am. Soc. C. E., who was introduced by Francis Lee Stuart, M. Am. Soc. C. E.; and, finally, George Fillmore Swain, Past-President, Am. Soc. C. E., who was represented at the meeting by Mrs. Swain, was presented by Hardy Cross, M. Am. Soc. C. E. Befitting the occasion, each member entrusted with the duty of presenting the candidates outlined the qualities and achievements that led to the award. Brief biographical sketches have been published elsewhere.§

The next feature was the presentation of Medals and Prizes. The Thomas Fitch Rowland Prize was awarded to D. B. Steinman and William G. Grove, Members, Am. Soc. C. E., for their paper entitled "The Eye-Bar Cable Suspension Bridge at Florianopolis, Brazil". Messrs. Steinman and Grove were presented by Otis E. Hovey, M. Am. Soc. C. E. The Norman Medal was awarded to G. T. Rude, M. Am. Soc. C. E., who was presented by R. S. Patton, M. Am. Soc. C. E. The title of the prize paper was "Tides and Their Engineering Aspects". Another paper entitled "Construction Methods on the Moffat Tunnel" by R. H. Keays, M. Am. Soc. C. E., won for its author the James Laurie Prize. Mr. Keays was unable to be present and his representative, George G. Honness, M. Am. Soc. C. E., who was presented for the honor by Thaddeus Merriman, M. Am. Soc. C. E., received it for him. F. C. Carstarphen, M. Am. Soc. C. E., was awarded the Arthur M. Wellington Prize for his paper entitled "Aerial Tramways". Mr. Carstarphen was presented by H. W. Dennis, M. Am. Soc. C. E. The Collingwood Prize for Juniors was given to William J. Cox, Assoc. M. Am. Soc. C. E., for his paper entitled "Automobile Hazard in Cities, and Its Reduction". Mr. Cox was presented for this honor by Charles J. Tilden, M. Am. Soc. C. E.

Considerable discussion developed on the proposed amendment to the Constitution authorizing changes in the requirements for various grades of membership. The most active discussion from the floor occurred over the question of changing the names of the Corporate grades of the Society from Member and Associate Member to Fellow and Member. On motion, this question was referred back to the Board of Direction for a canvass of the opinion of the membership by questionnaire.

The two other amendments, namely, to change the number of meetings and to make certain changes in the redistricting of Society membership, were voted to be sent to the membership to letter-ballot.

\* See Society Affairs, p. 75.

† *Loc. cit.*, p. 92.

‡ *Loc. cit.*, p. 96.

§ *Proceedings*, Am. Soc. C. E., December, 1929, *Society Affairs*, p. 355.

After the Chairman of Tellers had reported officially the results of the annual election of officers for 1930,\* the new President, J. F. Coleman, was escorted to the platform by Past-Presidents Lincoln Bush and Robert Ridgway. President Coleman then presented to Retiring President Anson Marston the gavel used during the year. The meeting was adjourned at 12:45 P. M.

### Afternoon Session

President Coleman called the afternoon session to order at 2:40 P. M., for presentation and discussion of Special Committee and Technical Division reports. The report of the Special Committee on Engineering Employment in Public and Quasi-Public Offices† was read by the Chairman, E. P. Goodrich, M. Am. Soc. C. E.

Several Division reports were presented on the "Status and Progress in the Art" of various branches of Civil Engineering. The first was the report on Highway Engineering,‡ read by the Chairman of the Highway Division, H. K. Bishop, M. Am. Soc. C. E. The report on Power Engineering§ was presented by Geo. A. Orrok, M. Am. Soc. C. E. The next report was on Sanitary Engineering and was read by C. A. Emerson, Jr., M. Am. Soc. C. E. William Bowie, M. Am. Soc. C. E., Chairman of the Surveying and Mapping Division, referred to the preprint copies of his report on the Status and Progress in the Art of Surveying and Mapping,|| and added a few supplementary remarks.

After some minor announcements had been made by the Secretary, the meeting was adjourned.

## Business Meetings of Technical Divisions

### Construction Division

As a part of the business session of the meeting of the Construction Division, Chairman W. J. Barney mentioned briefly the activities of the year. He then introduced the incoming Chairman, J. P. H. Perry, M. Am. Soc. C. E. The new member of the Executive Committee, A. P. Greensfelder, M. Am. Soc. C. E., was also introduced.

Before the meeting proceeded to the reading of papers, the members signified their appreciation of the work of Mr. Barney in promoting the Division during his Chairmanship, by a rising vote of thanks.

The new Executive Committee of the Division is as follows: Messrs. J. P. H. Perry, William Joshua Barney, Arthur S. Bent, Arthur C. Everham, and A. P. Greensfelder.

\* See *Proceedings*, Am. Soc. C. E., February, 1930, Society Affairs, p. 33.

† See *Papers and Discussions*, p. 409.

‡ See *Papers and Discussions*.

§ Loc. cit.

|| Loc. cit.

¶ Loc. cit.

### Highway Division

With Chairman H. K. Bishop presiding, the meeting of the Highway Division began at once with the reading of the technical papers. During the proceedings a motion was carried to appoint a committee to make a further study of the Equitable Distribution, for Highway Purposes, of Motor Vehicle License Fees and Gasoline Taxes. This Committee was ordered to make a report to the Executive Committee by September 1, 1930, which will be submitted to the Division at the next Annual Meeting.

### Power Division

To dispense with the bulk of business routine and make way for the full discussion of the technical paper on the program, Chairman L. J. Bevan simply called attention to the report of the Division as outlined in Part 2 of *Proceedings* for December, 1929. The Division went on record as favoring the appointment of a special committee by the Society for the purpose of studying or co-operating with others in the study of dams. The meeting passed a resolution of sympathy to the family of Edgar William Maloney, M. Am. Soc. C. E., who died in April, 1929. Mr. Maloney was Secretary of the Division for the greater part of its existence.

### Sanitary Engineering Division

The meeting of the Sanitary Engineering Division was called to order by Chairman Russell Suter. The Division was apprised of the policy of limiting Division meetings to two beside the Annual Meeting Session. The Secretary of the Division was instructed to revise the Division Constitution to conform to the recommendations of the Society's Committee on Technical Procedure.

The report\* of the Committee on Filtering Materials for Water and Sewage Works was presented by William E. Stanley, *Chairman*. The Committee on Friction of Sludge in Pipes presented its report† and was discharged. Similar action was taken with respect to the Committee on Water-Works.‡ The work of the Committee on Sewage Works Operation and Control was recommended to be continued until its final report has been published and discussed. The report of the Committee on New Jersey Sewage Experiments was presented.§ Action was taken to submit to the Board of Direction a recommendation for the creation of a Committee on Municipal Cleansing. A Committee of the Division, on Laws and Regulations Relating to Charges for Sewer Service, was authorized, to consist of five members to be appointed by the Chairman. The Chairman was further authorized to appoint a committee of five to prepare a Symposium on "Sludge Digestion".

W. H. Dittoe, M. Am. Soc. C. E., was elected Chairman of the Division for two years. The other members of the Executive Committee are as follows: Messrs. Edward Bartow, Samuel A. Greeley, Robert Spurr Weston, and E. B. Whitman.

\* See *Papers and Discussions*.

† *Loc. cit.*

‡ *Loc. cit.*

§ *Loc. cit.*

## Meetings of the Board of Direction

This is an abstract of the notes of the Secretary and subject to approval by the Board of Direction at its next meeting.

The Board met at 10:00 a. m., at Society Headquarters, on January 13, 1930; President Anson Marston in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bell, Brillhart, Budd, Bush, Dennis, Dufour, Dyer, Eddy, Fowler, Fuller, Hammond, Hill, Jacobs, Johnston, Lucas, Morris, Nicholson, Pirnie, Ray, Reichmann, Stevens, and Treasurer Hovey.

### Annual Report of Board of Direction

The Annual Report of the Board\* was approved and adopted.

### Approval of Minutes of Board of Direction

The minutes of the meeting of the Board held on October 7 and 8, 1929, were approved.

### Approval of Minutes of Executive Committee

The minutes of the meeting of the Executive Committee held on December 16, 1929, were approved, and the actions outlined therein were adopted as the actions of the Board.

### Committee on Professional Conduct

The Committee on Professional Conduct reported on six matters it had under consideration.

### Committee on Student Chapters

The report from the Committee on Student Chapters was presented, discussed, and adopted.

### Student Chapter Conference

The desirability of holding Student Chapter Conferences at the Regional Meetings was discussed.

An official communication is to be forwarded by the Secretary on behalf of the Board of Direction, urging Faculty Sponsors of Student Chapters in the vicinity of Sacramento, Calif., to obtain permission for student representatives to attend the Spring Meeting in April, 1930, without detriment to their University standing.

### Committee on Registration of Engineers

A report from the Committee on Registration of Engineers, together with a proposed new uniform registration law, was presented, and, on motion, the

\* See Society Affairs, p. 75.

Secretary was instructed to transmit a draft of the proposed law to the other Founder Societies, with the suggestion that representatives be appointed to assist in framing a draft that will be supported by all the Founder Societies; further, that any joint conference held on this matter shall be under the guidance of the Society's Committee on Registration of Engineers and that the Committee be requested to report to the Board at its next meeting.

#### **Committee on Local Sections**

The Committee on Local Sections presented a report, which was adopted.

In response to a petition signed by the requisite number of members, the formation of a Local Section of the Society at Tacoma, Wash., was approved.

#### **Committee on Districts and Zones**

The Committee on Districts and Zones reported on a method of defining a new district contingent upon approval of a pending constitutional amendment.

#### **Committee on Research**

The Committee on Research presented a report, which was accepted and placed on file.

#### **World Power Conference**

An invitation addressed to the President and the Board of Direction, inviting the Society to affiliate with the American Committee of the World Power Conference and designate a representative to serve on the Council of the Committee was presented. After discussion, it was moved to approve in principle the Society joining with other technical societies in affiliating with the World Power Conference Committee, the Executive Committee being authorized to take suitable procedure.

#### **Committee on the Mobilization Plan (Functional Expansion Program)**

The Committee on the Mobilization Plan presented its report\* on a Functional Expansion Program, which, after discussion, was adopted.

#### **Status of Sanitary Engineers in Public Health Service**

In furtherance of the action of the Board on January 14, 1929, favoring the improvement of the status of sanitary engineers in the U. S. Public Health Service, the Secretary was authorized to write such letters as may be desirable in support of the objective and George W. Fuller, M. Am. Soc. C. E., was appointed as a Committee of one to assist in the passage of such a bill in the present Congress.

\* See Society Affairs, p. 55.

The Board reconvened January 14, 1930, at Society Headquarters; President Anson Marston in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bell, Brillhart, Budd, Bush, Dennis, Dyer, Eddy, Fowler, Hammond, Hill, Jacobs, Johnston, Lucas, Morris, Nicholson, Pirnie, Ray, Reichmann, Stevens, and Treasurer Hovey.

#### Technical Procedure Committee

The Technical Procedure Committee presented a report authorizing a program of Society and Technical Division activities.

#### Committee on Dams

A Committee on Dams was authorized, to be composed of Thaddeus Merriam, M. Am. Soc. C. E., as Chairman, and six other members to be appointed by the President.

#### Budget Approved

At the conclusion of the consideration of the various items, the Budget was approved for recommendation to the Incoming Board. Two recommendations of the Executive Committee affecting the Budget were acted on favorably, namely: (1) That the Technical Procedure Committee hold only one meeting in 1930 (at Cleveland, Ohio, in July); and (2), that certain sums in the Budget be appropriated for the use of the proposed Committee on Functional Expansion Program, in conjunction with the possible needs of the Committee on Publications should it be considered desirable to incorporate a portion of *Proceedings* in a journal carrying advertising.

#### Meeting of the Incoming Board, January 16, 1930

The incoming Board met at Society Headquarters, on January 16, 1930; President J. F. Coleman in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bush, Dougherty, Dusenbury, Dyer, Eddy, Fowler, Hammond, Howe, Jacobs, MacCrea, Marston, Morris, Pirnie, Reichmann, Singstad, Slattery, Stevens, Thomas, Winsor, and Treasurer Hovey.

#### Budget for 1930

The Budget for 1930, as recommended by the outgoing Board, was considered and, on motion, was adopted.

#### Committees

The following personnel for Committees for 1930, was approved:

*Executive Committee*.—J. F. Coleman, *Chairman*; Lincoln Bush, *Vice-Chairman*; F. E. Winsor, H. P. Eddy, and R. E. Dougherty.

*Honorary Membership Committee*.—J. F. Coleman, *Chairman*; Lincoln Bush, Anson Marston, A. J. Dyer, A. J. Hammond, J. M. Howe, and F. E. Winsor.

*Publications Committee*.—H. P. Eddy, *Chairman*; Morris Knowles, Malcolm Pirnie, Ole Singstad, and Charles H. Stevens.

*Professional Conduct Committee*.—A. J. Hammond, *Chairman*; F. H. Fowler, and Frank L. Nicholson.

*Committee on Districts and Zones*.—Joseph Jacobs, *Chairman*; Don A. MacCrea, and J. R. Slattery.

*Technical Procedure Committee*.—J. F. Coleman, *Chairman*; H. P. Eddy, J. H. Johnston, Clyde T. Morris, George H. Norton, the Chairmen of the nine Technical Divisions of the Society, and George T. Seabury, *Secretary*.

*Committee on Accredited Schools*.—Morris Knowles, *Chairman*; G. M. Braune, H. P. Hammond, F. O. Dufour, A. E. Morgan, and C. M. Spofford.

*Functional Expansion Program Committee*.—A. J. Hammond, *Chairman*; A. J. Dyer, J. M. Howe, Ralph Budd, and F. L. Nicholson.

*Committee on Research*.—Clyde T. Morris, *Chairman* (Contact Member); Thaddeus Merriman, *Vice-Chairman* (1 year); R. W. Crum (2 years), T. C. Hatton (3 years), and Appointee not yet named (4 years).

*Committee on Membership Qualifications*.—George L. Lucas, *Chairman* (1 year); H. J. Sherman, *Vice-Chairman* (2 years); R. F. Proctor (3 years), J. S. Conway (4 years), and Malcolm Pirnie (Contact Member).

*Committee on Local Sections*.—H. D. Dewell, *Chairman* (1 year); H. W. Dennis, *Vice-Chairman* (2 years); Murray Sullivan (3 years), Robert Folansbee (4 years), and F. H. Fowler (Contact Member).

*Committee on Juniors*.—Donald Derickson, *Chairman* (1 year); Robert J. Cummins, *Vice-Chairman* (2 years); E. N. Noyes (3 years), A. M. Lund (4 years), and Allan T. Dusenbury (Contact Member).

*Committee on Student Chapters*.—Charles W. Sherman, *Chairman* (1 year); Appointee not yet named, *Vice-Chairman* (2 years); O. M. Leland (3 years), J. J. Doland (4 years), and Clyde T. Morris (Contact Member).

*Committee on Engineering Education*.—Clifford Olden, *Chairman* (1 year); Langdon Pearse, *Vice-Chairman* (2 years); D. W. Mead (3 years), A. H. Fuller (4 years), and A. F. Reichmann (Contact Member).

*Public Educational Committee*.—W. H. Adams, *Chairman* (1 year); J. F. Skinner, *Vice-Chairman* (2 years); C. J. Tilden (3 years), Appointee not yet named (4 years), and Charles H. Stevens (Contact Member).

*Legislation Committee*.—(Appointees not yet named), *Chairman* (1 year); *Vice-Chairman* (2 years); (3 years), (4 years), and Joseph Jacobs (Contact Member).

*Committee on Registration of Engineers*.—T. Keith Legare, *Chairman* (1 year); C. M. Reppert, *Vice-Chairman* (2 years), J. H. Herron (3 years), L. L. Hidinger (4 years), and R. E. Dougherty (Contact Member).

*Committee on Charges and Method of Making Charges for Professional Services*.—J. Vipond Davies, *Chairman*; H. Eltinge Breed, W. W. Colpitts, C. W. Hudson, W. S. Kinnear, J. R. McClintock, I. W. McConnell, Ralph Modjeski, R. R. Rumery, J. F. Sanborn, and Ole Singstad (Contact Member).

*Committee on Engineering Employment in Public and Quasi-Public Offices.*—E. P. Goodrich, *Chairman*; E. O. Griffenhagen, A. B. McDaniel, W. F. Reeves, Arthur Richards, and J. Houstoun Johnston (*Contact Member*).

*The Fowler Professional Award Committee.*—J. F. Coleman, *Chairman*; A. J. Dyer, A. J. Hammond, J. M. Howe, and F. E. Winsor.

*Phebe Hobson Fowler Architectural Award Committee.*—George H. Pegram, *Chairman*; William Adams Delano, Charles D. Marx, William A. Starrett, and R. T. Walker.

*Alfred Noble Memorial Prize Committee.*—C. M. Spofford, *Chairman*; J. Vipond Davies, L. P. Alford, H. P. Charlesworth, and E. T. Howson.

*Committee on the Society Property at 57th Street.*—Lincoln Bush, *Chairman*; George S. Davison, Ira W. McConnell, and Francis Lee Stuart.

## Meeting of Executive Committee

This is an abstract of the notes of the Secretary and subject to approval by the Executive Committee at its next meeting.

The Executive Committee met at Society Headquarters on January 16, 1930; President J. F. Coleman in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bush, Dougherty, Eddy, Winsor, and Treasurer Hovey. Several matters relating to Society business were considered.

### World Power Conference

The Power Division was authorized to take membership in the American Committee of the World Power Conference, it being understood that the Division would appoint its own representative.

## Local Sections\*

**Buffalo.**—The following officers of the Section have been elected for 1930: President Theron M. Ripley; Vice-President, William Kelly; and Secretary-Treasurer, George F. Prong.

**Cleveland.**—January 6, 1930. A dinner meeting was held at the Hotel Cleveland in honor of the Past-Presidents of the Section. Director Clyde T. Morris, who was also a guest of honor, explained the proposed amendments to the Constitution and outlined the work of the various research committees of the Society. The Secretary was authorized as the delegate to attend the Annual Meeting of the Society in New York, N. Y. Attendance 59.

**District of Columbia.**—The following officers of the Section have been elected for 1930: President, Edwin W. James; Vice-President, William H. Richards, Jr.; and Secretary-Treasurer, Fred F. Henshaw.

**Illinois.**—February 3, 1930. A business meeting was held, at which resolutions were passed relating to the change in membership qualifications and the appointment of a committee to represent the Section on the Joint Committee on Engineering Society Activities of Local Sections with the four Founder Societies and the Western Society of Engineers. A series of reports were read which concluded the meeting. Attendance 32.

**Kansas (State).**—January 10, 1930. At the Annual Meeting held in the new cafeteria of the Union Building of Kansas University at Lawrence, the following officers were elected for 1930: President, H. M. Swope; Vice-President, E. H. Connor; and Secretary-Treasurer, F. W. Epps. A discussion on constitutional amendments followed. Attendance 11.

**Miami.**—January 15, 1930. At a dinner meeting of the Section held at the McAllister Hotel, the following officers of the Section were elected for 1930: President, O. A. Sandquist; Secretary, George P. Morrill; and Directors, George P. Morrill, O. A. Sandquist, C. S. Nichols, M. B. Garris, R. W. Reed, and M. R. Kays. Frank Feiler, Field Engineer for the American Wood Preservers Association, then addressed the meeting.

**Mid-South.**—November 15, 1929. The Fall Meeting of the Section was held at the University of Mississippi in Oxford, Miss. During a college hour which preceded the afternoon session, Maj. J. C. H. Lee, Corps of Engineers, U. S. A., explained the Mississippi River Flood Control Plan to the student body. Later, Mr. L. R. Parmelee, of Helena, read a manuscript on the Flood Control Plan in which he reviewed Army Engineers' reports on floods from 1822 to that of the Mississippi River Commission and Army Engineers on Control of Flood Waters in 1928. Lt. H. D. Vogel then addressed the meeting on hydraulic laboratories in Germany and Col. John R. Fordyce, of Hot Springs, presented an interesting engineering study, illustrated by lantern slides, of De Soto's route from the Florida Coast northwesterly to the Mississippi Valley *via* the State of Georgia. A discussion followed on the report on

\* For list of Local Section Officers, Rules, etc., see 1929 Year Book, p. 46.

**"Charges and Method of Making Charges for Professional Services."** The meeting was then adjourned to a banquet and entertainment given by students of the University. Attendance 35.

**Milwaukee.**—December 19, 1929. At the Annual Meeting of the Section the following officers were elected for 1930: President, Charles S. Whitney; Vice-Presidents, R. S. Peotter and C. U. Smith; and Secretary-Treasurer, Fred W. Ullius. Following the appointment of various committees, Mr. Kenneth H. Talbot spoke on "The Weighing of Aggregates in the Manufacture of Concrete". Mr. George Langley, Engineer of Sheboygan County, then led a discussion of the subject and gave an interesting account of experimental work which his County is furthering in the weighing of aggregates. Attendance 27.

January 9, 1930. This was a business meeting of the Section, at which time committee reports were presented for approval and discussion. Attendance 28.

January 23, 1930. At a meeting held at the City Club, Mr. T. C. Hatton described various events at the Annual Meeting of the Society recently held in New York, N. Y. Mr. E. A. Howard, Supervising Engineer of the County Planning Department, then gave an illustrated address on the subject of widening main highways and county parkways.

**Nashville.**—January 13, 1930. The following officers of the Section were elected for 1930: President, A. J. Dyer; Vice-President, F. J. Lewis; Secretary, W. David Glenn; and Directors, Hunter McDonald and W. H. Schuerman.

**Nebraska and Iowa.**—February 4, 1930. A joint meeting of the Sections was held at Council Bluffs, Iowa, during the Annual Meeting of the Iowa Engineering Society. Charles H. Young, President, Central States Engineering Company, Muscatine, Iowa, spoke on "Operating Costs in the Practice of Consulting Engineering". Director Ralph Budd, President, Great Northern Railway Company, also addressed the meeting, choosing as his subject, "Society Affairs". An open forum concluded the meeting.

**Northeastern.**—January 25, 1930. The Annual Meeting of the Section was held, following a luncheon, at the Engineers' Club in Boston, Mass. Committee reports were presented and accepted and further business attended to, after which the following officers were elected: President, Frank B. Walker; Vice-President, Hale Sutherland; Secretary-Treasurer, Arthur D. Weston; and Members of the Executive Committee, Charles W. Banks and Harold K. Barrows. The Hon. Herbert Parker was the speaker of the evening, choosing as his subject, "The Significance of the Events We Celebrate in the Tercentenary Year". Attendance 51.

**Northwestern.**—The following officers of the Section have been elected for the ensuing year: President, Harry D. Lovering; Vice-Presidents, William N. Carey and George E. Loughland; and Secretary-Treasurer, Maurice W. Hewett.

**Philadelphia.**—January 30, 1930. A dinner meeting of the Section was held at the Engineers' Club. The general subject for the evening was "The Tri-State Water Compact". M. R. Sherrerd, Chief Engineer of the State Water Policy Commission of New Jersey, presented the case in favor of the Compact, followed by Robert E. Horton, Consulting Engineer, of Albany, N. Y., who spoke on the opposite side of the case. The legal phases of the question were discussed by James S. Rogers, Member of the Philadelphia Bar, and Past-President John F. Stevens also contributed to the general subject. The following also engaged in the discussion: Col. George B. Pillsbury, District Engineer, U. S. Army, Philadelphia; Ezra B. Whitman, Consulting Engineer, of Baltimore, Md.; J. Hampton Moore, former Mayor of the City of Philadelphia; William Easby, Jr., Wayne Bernard, M. B. Tark, Lyle L. Jeune, Charles H. Stevens, and Assistant City Solicitor Elcock. The attendance at the dinner was 111 and at the meeting, 175.

**Rochester.**—The following officers of the Section have been elected for the ensuing year: President, A. Harold Metcalfe; Vice-Presidents, C. Arthur Poole and Robert B. Jeffers; Secretary-Treasurer, Carl C. Cooman; and Junior Past-President, Percy Waller.

**Sacramento.**—December 3, 1929. At this meeting of the Section, motion pictures of "Fuel Burning Equipment for Modern Steam Plants", furnished by the Combustion Engineering Company, were shown. Attendance 48.

December 10, 1929. Maj. J. R. D. Matheson, of the U. S. Engineering Department, addressed the meeting on "The Work of the United States Engineers". Attendance 39.

December 17, 1929. "Highway Location Practice of the Division of Highways, State of California", was the subject of a paper read by Fred J. Grumm, Chief of the Department of Plans and Surveys. Attendance 61.

December 24, 1929. This was the occasion of the Sixth Annual Jinks which was attended by 77 members and friends.

December 31, 1929. Dr. Sherman L. Devine, Pastor of the Westminster Presbyterian Church, gave an illustrated talk on his travels in India. Attendance 37.

January 7, 1930. H. B. Walker, Professor of Agricultural Engineering at the University of California, who recently represented the American Society of Agricultural Engineers at the International Engineering Congress held in Tokyo, Japan, addressed the meeting on "The Industrial Development of Japan". Attendance 49.

January 14, 1930. This was the Eighth Annual Meeting of the Section. Committee reports were read, and the following officers were elected for 1930: President, Thomas E. Stanton, Jr.; First Vice-President, S. H. Searancke; Second Vice-President, Harlowe M. Stafford; and Secretary, Norwood Silsbee. There was a net gain in membership of 35 during the past year. Attendance 48.

January 21, 1930. Albert Givan, Member and Secretary of the State Board of Engineering Examiners, addressed the meeting on the progress which

is being made in effecting the Engineers' Registration Law, passed by the last Legislature. Attendance 37.

January 24, 1930. The Eighth Annual Installation of Officers was held at the Hotel Senator. During the dinner, music was furnished by Mrs. E. N. Bryan, the wife of Past-President Bryan, Raymond Matthew, and Miss Sue Donnelly. President Joseph W. Gross gave the Annual Address and presented the gavel to President-elect, Thomas E. Stanton, Jr. Mr. Gross, in turn, was presented with the gavel he had used during the past year, suitably inscribed, by Past-President, J. B. Brown. Dancing lasted until 12:40 A. M. The meeting was attended by 145 members and their guests.

**San Diego.**—December 19, 1929. A dinner meeting of the Section was held at the San Diego Athletic Club. A discussion of the proposed constitutional amendments and by-laws took place, followed by the election of officers for 1930. Attendance 20.

January 23, 1930. At a dinner meeting held at the Athletic Club of San Diego it was announced that the proposed constitution and by-laws had prevailed in a letter ballot. Mr. R. Robinson Rowe then presented "The Major Traffic Street Plan of the City of San Diego" for discussion and criticism. Several alterations were suggested, and a committee was appointed to consider the Plan and to advise the Section. Attendance 22.

**San Francisco.**—The following officers of the Section have been elected for 1930: President, H. D. Dewell; Vice-Presidents, L. B. Reynolds and George W. Pracy; Past-President, I. C. Steele; and Secretary-Treasurer, Harold B. Hammill.

**Tacoma.**—January 13, 1930. A regular dinner meeting of the Tacoma Section was held at the Winthrop Hotel. Mr. R. K. Tiffany, Consulting Engineer of Olympia, gave a brief résumé of the natural resources of the State of Washington, and also spoke at length on the engineer's part in the gathering and dissemination of authentic data on the natural resources of the State. Mr. Lothrop Crosby, of the Water Department of the City of Tacoma, then gave an illustrated address on the reconstruction of a part of the gravity water supply main of the City of Tacoma. Mr. Crosby discussed details of design, methods of construction, and tests of materials. Attendance 25.

**Virginia.**—The following officers of the Section have been elected for 1930: President, F. F. Harrington; and Secretary-Treasurer, Albert C. Dunn.

**Western Washington.**—January 27, 1930. The Annual Meeting of the Section was held at the Engineers' Club in the Arctic Building in Seattle. A dinner was served after which Commander W. Dixon Hopcraft, (*Retired*), of the British Navy, told of his adventures while attempting to capture the German raider *Emden* during the World War. The following officers were elected for 1930: President, J. R. West; Vice-President, E. L. Strandberg; and Secretary-Treasurer, Thomas D. Hunt. Attendance 32.

## Annual Reports

### ANNUAL REPORT OF THE BOARD OF DIRECTION FOR THE YEAR ENDING DECEMBER 31, 1929

In compliance with the Constitution, the Board of Direction presents its Report for the year ending December 31, 1929.

#### THE SEVENTY-SEVENTH YEAR

The major portion of this annual report necessarily must be statistical in character. The data are voluminous and specific. One may find precise information on the special Society activity that interests and if one reads at all thoughtfully there must be a consciousness of the multiplicity and diversity of the Society's endeavors. From among the many details however certain facts may be brought into especial prominence as being extraordinary or significant.

#### Financial

The Society's income was augmented materially in 1929 by the increased rental received from its property at 220 West 57th Street, New York City. This was the first year in which the lease, made in 1926, was fully effective. The net increase from this source amounted to approximately \$30 000. It permitted the Society to contribute to American Engineering Council its proportionate share as a member-body of that organization without the necessity of curtailment in any of the Society's other activities. It further permitted the definite establishment of a reserve fund, known as The 57th Street Property Fund.

The property is to return a uniform rate of rental for the term of twenty-one years and it has been recognized that this rate is in excess at this time of the true earning value of the property just as in the years at the latter end of the term it will be less than a fair rate of return on the probable value of the property at that time. With this thought in mind The 57th Street Property Fund has been established this year on a definite basis that in years to come will provide a source of annual revenue to supplement the fixed rental figure.

#### Publications

The technical publications of the Society, the *Proceedings* and the *Transactions*, have received intensive study, resulting in the past year in a volume of technical material of which the Society may well be proud. The publications provide a medium for dissemination of technical material not available elsewhere. This material has three sources: Papers submitted voluntarily,

papers solicited for presentation at meetings and reports or papers resulting from committee work. Outstanding among the latter are the General Specifications for Steel Railway Bridges, the report of the Special Committee on Charges and Method of Making Charges for Professional Services, and the reports on Construction Equipment prepared by various committees of the Construction Division. Within the Technical Divisions other reports are in progress and almost ready for publication.

With the thought that not only must *Proceedings* cover a wide range of topics but also that it should present the material in a form of as great practical value as possible the papers and discussions have been subjected to a policy of rather drastic condensation. The intent has been to present the salient features in as concise terms as possible to a well informed and studious reader. In such a process the individuality of the writer necessarily has been subordinated to the exposition of the topic. The *Proceedings* are objective, not subjective. The reader, not the writer, is the criterion.

It is in this spirit also that the *Proceedings* during the past year has contained abstracts of the papers and discussions produced at the quarterly meetings. To as great an extent as possible the important elements of the complete technical program of each meeting has been placed before the entire membership in the succeeding issue of *Proceedings*.

### Membership

During the years 1926, 1927, and 1928 the Society's net growth in membership mounted at an increasing rate. In the past year there has been a net growth of 508 members but the rate of increase has not been equal to that of any of the preceding three years. It is, however, a larger figure than any other net annual growth in the history of the Society, those three years excepted.

One naturally would wish to understand the reasons for the less rapid rate of growth in the past year. The principal element is a marked decrease in the number of admissions combined with a larger loss through failure to pay dues than is usual. With it all the net growth of 508 represents an addition to the Society of 1 022 persons not hitherto connected with it, and a loss of only 423 persons, or 3.0%, who heretofore belonging to the Society, found it necessary, or advisable for one reason or another, to withdraw. A further significant fact is that there are now 2 253 members in the Junior grade, a number representing 16.0% of the entire membership.

### Participation in Society Work

One feature concerning the Society that may not be deduced from a study of the appended statistics is the number of members interestedly engaged in its operations. Even a thoughtful student of the Society can hardly realize

the extent of this interest. Viewing as he must from a somewhat limited knowledge, he may comprehend parts of the Society's work without a similar comprehension of other parts equally important but with which he is less intimately concerned.

During the past year, more than 300 committees were dealing with one or another of the Society's activities. These were committees of the Board of Direction, committees advisory to the Board on special matters, committees engaged in the admission and transfer of members, committees preparing for the several meetings of the Society: These are of an administrative nature.

There were technical committees, carrying on major research investigations, committees of the Technical Divisions engaged in the assembly and codification of technical data, committees engaged in the preparation of treatises on the state of the art or on the design, the practices, or the materials incident to special technical topics: These all focusing their endeavors on the dissemination of technical information through the medium of the Society's publications.

At meetings, 99 authors prepared and read papers, 67 members contributing discussions. *Proceedings* contained papers by 36 authors and discussions by 262 commentators. Interested members to the number of 173 prepared memoirs of deceased members. Experts to the number of 280 assisted in the selection and development of papers: This volunteer work also finding dissemination to the profession through the medium of the publications.

There are 95 representatives of the Society to other societies; 96 Faculty Sponsors provide contact with the Student Chapters; there are 100 Presidents and Secretaries of the Society's Local Sections; these contributing, perhaps, most of all, to a unity of influence for the Society and the things it endeavors to do.

Totaled on the basis of definite records and not including the many members participating in Local Section activities a figure almost impossible of tabulation, 2150 members of the Society last year contributed of time, knowledge, or effort to the advancement of the Society and its various major activities—and this without remuneration other than a consciousness of work well intended or well performed.

#### MEETINGS OF THE BOARD OF DIRECTION

There have been five meetings of the Board of Direction during 1929:

January 14-15, New York, N. Y.

January 17, New York, N. Y.

April 22-23, Dallas, Tex.

July 8-9, Milwaukee, Wis.

October 7-8, Boston, Mass.

There have been two meetings of the Executive Committee in 1929, one in Dallas, Tex., on April 22, and the other in New York on December 16.

## MEMBERSHIP

The changes in membership are shown in the following table:

	JAN. 1, 1929.			JAN. 1, 1930.			LOSSES.			ADDITIONS.			TOTALS.			
	Resident.	Non-Resident.	Total.	Resident.	Non-Resident.	Total.	Transfer.	Resignations.	Dropped.	Died.	Transfer.	Election.	Reinstatement.	Loss.	Gain.	Increase.
Honorary Members.	5	11	16	5	13	18	...	...	...	2	3*	1	1	2	4	2
Members.....	971	4 582	5 553	995	4 638	5 633	3	27	40	94	120†	111	13	164	244	80
Associate Members.	1 009	4 863	5 872	1 061	4 970	6 031	120	49	168	32	109‡	992	97	869	598	159
Juniors.....	400	1 591	1 991	468	1 785	2 253	100	28	109§	6	506	3	247	509	262	262
Affiliates.....	54	84	138	56	87	143	...	3	4	1	12	1	8	18	5	5
Fellows.....	4	8	7	3	4	7	...	...	...	...	...	...	...	...	...	...
Total.....	2 443	11 134	13 577	2 588	11 497	14 085	232	102	321	185	232	1 022	44	790	1 298	508

\* 3 Members.

† 120 Associate Members.

‡ 109 Juniors.

§ 47 Juniors dropped on account of age limit.

## New Members and Net Increase

The following table shows the new members and the net increase during the past ten years. The accompanying diagram gives membership statistics for the same period.

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
New Members*....	887	743	636	733	715	795	1072	1139	1244	1066
Net Increase.....	499	435	246	320	262	111	721	755	820	508

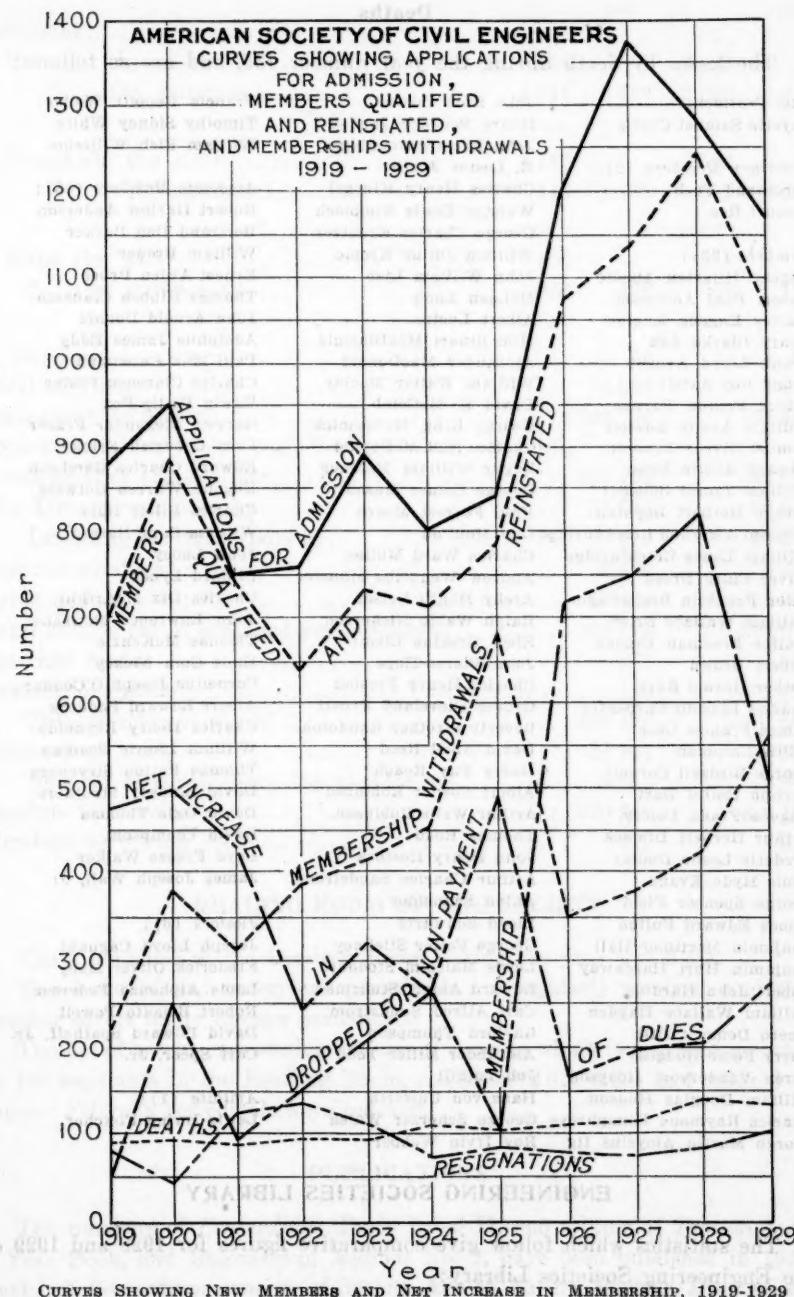
## Applications for Membership

The total number of applications for membership was 1 443, of which 1 172 were for admission and 271 for transfer.

The number of applications received during the past ten years follows:

	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
For Admission.....	960	745	761	896	800	848	1 194	1 374	1 254	1 172
For Transfer.....	325	309	260	217	239	256	292	304	274	271
Total.....	1 285	1 054	1 021	1 113	1 039	1 104	1 486	1 678	1 558	1 443

\* Includes reinstatements.



### Deaths

The losses by death during the year number 135, and are as follows:

*Past-President:*

Fayette Samuel Curtis

*Honorary Members (2):*

Ferdinand Foch

Samuel Rea

*Members (93):*

Eugene Hilarian Abadie  
Robert Paul Anderson  
Walter Eugene Angier  
Henry Clarke Ash  
Frank Lloyd Averill  
Frank Foy Axtell  
Albert Fenton Barnes  
William Austin Bassett  
Samuel Givens Bennett  
Edward Austin Bond  
William James Boucher  
George Herbert Boynton  
William Algernon Brackenridge  
William Lewis Breckinridge  
Oliver Clark Breed  
Peter Franklin Brendlinger  
William Wallace Brier  
Walter Freeman Brooks  
Robert Brown  
Luther Harold Burt  
Charles Lincoln Carpenter  
James Francis Case  
Willis Chipman  
George Birdsall Cornell  
Carlton Rollin Dart  
Eugene Frank Deléry  
Arthur Herbert Dimock  
Frederic Leslie Dudley  
Louis Hyde Evans  
George Spencer Field  
James Edward Fulton  
Benjamin Mortimer Hall  
Benjamin Hurt Hardaway  
Robert John Harding  
William Wallace Hayden  
Cicero Demerit Hill  
Harry Foote Hodges  
Carey Vandervort Hodgson  
William Douglas Hudson  
Charles Raymond Humphreys  
George Martin Aloysius Ilg

John Dove Isaacs

Henry Scudder Jaudon

John Edward Jennings.

E. Lester Jones

Charles Henry Kluegel

Walston Emile Knobloch

George Charles Kreutzer

William Julius Krome

John William Lieb

McLean Long

Albert Lucius

Milo Stuart MacDiarmid

Alexander MacDonald

William Walter MacLay

David E. McComb

George King McCormick

Charles Neil McDonald

Edgar William Maloney

George Cotner Mason

Fred Forrest Moore

Guy Moulton

Charles Ward Mullen

Andrew Wendelbo Münster

Archy Magill Nelson

Ralph Waldo Nickerson

Eben Erskine Olcott

John Pierce-Hope

Charles Henry Preston

Grover Cleveland Pruett

Beverly Strother Randolph

David Abell Reed

Harry Fay Roach

Albert Fowler Robinson

Arthur Wells Robinson

Thomas Rodd

John Henry Rostock

Arthur Charles Sandstrom

Anton Schneider

Lloyd Schwartz

George Fetter Stickney

Lewis Malcolm Stoddard

Edward Ahlert Stuhrman

Carl Alfred Sundstrom

Gaylord Thompson

Alexander Miller Todd

Job Tuthill

Hans von Unwerth

George Scherzer Walsh

Roy Irvin Webber

Francis Repetti Weller

Timothy Sidney White

William Fish Williams

*Associate Members (32):*

Robert Harlow Anderson

Bertrand Don Barker

William Breuer

Ernest Arden Bruce

Thomas Hibben Claussen

John Arnold Donald

Adolphus James Eddy

Paul Max Entenman

Charles Clarence Foster

Edwin Philip Fox

Garrett Alexander Fraser

Fred Goodrich Frink

Edward Charles Gersbach

Eugene Warren Gotwals

Charles Ellett Hart

William Cary Hattan

John Lucey

Clifford Lynde

Charles Dix McArthur

John Lawrence McGrane

Thomas McKenzie

Emit Coin Nickey

Cornelius Joseph O'Connor

Albert Edward Paddock

Charles Henry Reynolds

William Laurie Seaman

Thomas Patton Stevenson

David Lindsay Struthers

David Ogle Thomas

David Thompson

Boyd Freeze Walker

James Joseph Wall, Jr.

*Juniors (6):*

Joseph Lloyd Cagnani

Frederick Oliver Macy

Louis Alphonzo Pederson

Robert Bruette Powell

David Edward Spathelf, Jr.

Carl Speer, Jr.

*Affiliate (1):*

Lewis Irving Fletcher

### ENGINEERING SOCIETIES LIBRARY

The statistics which follow give comparative figures for 1928 and 1929 of the Engineering Societies Library:

		1928.	1929.
<b>Additions:</b>			
Volumes (by gift).....	4 818	2 826	
" (by purchase) .....	1 811	6 629	2 086 4 912
<hr/>			
Pamphlets (by gift).....	1 117	2 342	
" (by purchase) .....	116	1 233	357 2 699
<hr/>			
Maps (by gift).....	206	135	
" (by purchase) .....	226	432	43 178
<hr/>			
Searches .....	75	95	
Total additions.....	8 369	7 884	
Permanent collection.....	129 793	135 408	
Expenditures for books, periodicals, binding, supplies, and salaries (approximate).....			
	\$45 584	\$44 940	
The Library was used by.....	37 236	38 800	
Including personal visits by.....	23 470	24 675	
Volumes cataloged.....	6 629	5 289	
Cards added to catalog.....	33 460	31 934	
Total catalog cards, arranged under subject.....	362 145	394 079	
Searches made.....	202	207	
Translations made.....	196	215	
Total number of words.....	486 425	587 500	
Photoprints made.....	34 964	38 569	
Number of persons securing photoprints.....	3 637	3 842	
Receipts for service.....	\$20 261	\$20 154	
Members borrowing books.....	317	313	

### READING ROOM OF THE SOCIETY

The attendance at the Reading Room during the year was 2 133.

Two hundred and ninety-one periodicals are regularly received, and this number covers many foreign periodicals.

The list of recent engineering articles of interest which is prepared monthly by the assistants in the Reading Room, contained 2 625 titles and covered 90 pages. Fifty-six periodicals were indexed.

### PUBLICATIONS

Ten numbers of *Proceedings*, Parts I and II, one volume of *Transactions*, a Year Book, and Engineering Manual No. 2, have been published in 1929. Part I of *Proceedings* consists of Society Affairs, Papers, Reports, Discussions,

and Memoirs, and Part II is the informal news section. Engineering Manual No. 2, "Definitions of Terms Used in Sewerage and Sewage Disposal Practice," is a Joint Report of a Committee of the Sanitary Engineering Division of the Society and a Committee of the American Public Health Association.

The stock of the various publications of the Society kept on hand for the convenience of members and others now amounts to 93 928 copies, the cost of which to the Society for paper and press work only, has been \$19 702.59.

The table (see page 83) shows the cost per page for text and illustrations in *Proceedings* and *Transactions* for the past fifteen years.

The subjects of the papers and discussions in *Proceedings* and *Transactions* during the year, and the number of pages devoted to each, follows:

Subject.	Transactions, pages.	Proceedings, pages.
City Planning.....	...	144
Contracts.....	...	50
Dams.....	418	244
Drainage and Irrigation.....	...	243
Engineering Education.....	9	12
Engineering Profession.....	...	6
Floods.....	400	26
Highway Engineering.....	...	108
Hydrology, Hydraulics.....	348	134
Materials of Engineering.....	...	62
Mathematics.....	...	28
Oil Industry.....	...	22
Power Plants.....	54	40
Power Transmission.....	...	52
Railways.....	84	36
Sanitation.....	...	38
Sewage Disposal.....	...	204
Structural Engineering.....	310	650
Surveying.....	...	190
Transportation.....	...	11
Valuation.....	...	26
Water Power.....	...	22
Waterways.....	104	114
Water-Works.....	22	24
	1 744	2 486

### Summary of Publications for 1929

	Issues.	Average edition.	Total pages.	Plates.	Cuts.
<i>Proceedings</i> , Part I (monthly numbers).....	10	14 540	3 566	..	534
<i>Proceedings</i> , Part II (monthly numbers).....	10	18 940	40	..	19
<i>Transactions</i> , Vol. 93.....	1	14 500	2 030	..	664
<i>Year Book</i> .....	1	15 300	504	1	2
<i>Engineering Manual</i> No. 2.....	1	16 000	20	..	..
Total .....	23	...	6 160	1	1 219

Cuts.  
534  
19  
664  
2  
1 219

TABLE SHOWING NUMBER AND COST OF PAGES AND COST OF ILLUSTRATIONS FOR Transactions AND Proceedings.

Year.	TRANSACTIONS.			PROCEEDINGS, PART I. PART I.			PROCEEDINGS (PART I)* and TRANSACTIONS.			ILLUSTRATIONS.			
	Issues.	Edition,	PAGES.				Total pages.	Total cost.	Cost per page.	Cost.	Cost.	Cost per page.	
			Per volume.	Total.									
1914	1	8 200	1 968	16 140 000	10	8 150	4 076	38 220 000	49 360 000	\$39 068.89	\$0.00079	\$2 968.32	
1915	2	8 600	3 180	35 900 000	10	8 425	3 668	30 900 000	57 800 000	47 984.16	0.00068	3 684.68	
1916	1	8 400	2 301	19 330 000	10	8 350	2 692	24 140 000	48 470 000	35 645.65	0.00068	1 408.12	
1917	..	....	....	10	8 550	3 482	29 350 000	28 350 000	28 648.18	0.00077	8 708.97	12.3	
1918	1	8 700	1 879	16 340 000	10	8 950	2 341	20 950 000	37 290 000	33 785.64	0.00069	1 192.20	
1919	1	9 000	1 775	15 980 000	8	9 100	2 086	19 075 000	35 055 000	32 082.69	0.00069	1 128.53	
1920	..	....	....	10	10 142	2 014	20 440 000	20 440 000	23 446.34	0.00115	2 552.27	10.9	
1921	2	{ 10 000 10 600	2 479 983	{ 35 212 000 19 900 000	10	10 680	1 584	19 450 060	54 662 000	66 298.39	0.00121	2 034.72	8.1
1922	1	10 900	1 826	19 900 000	10	11 100	2 740	30 400 000	50 800 000	56 200.00	0.00112	3 700.00	6.6
1923	1	11 200	1 808	20 250 000	10	11 500	3 210	36 915 000	57 165 000	60 612.83	0.00106	4 608.88	7.9
1924	1	11 500	1 515	17 440 000	10	11 750	2 612	30 700 000	48 140 000	47 573.72	0.00099	4 579.04	9.6
1925	1	11 400	1 538	17 533 000	10	11 800	2 910	34 388 000	51 871 000	47 409.07	0.00091	6 259.19	13.4
1926	12 100	1 786	21 610 000	10	12 200	3 046	37 161 000	58 771 000	53 473.54	0.00091	5 080.91	9.5	
1927	2	{ 12 900 13 200	1 234 1 220	{ 15 919 000 16 223 000	10	13 050	3 720	48 546 000	80 688 000	65 972.76	0.00080	9 279.49	14.0
1928	1	14 000	1 860	26 040 000	10	14 200	4 016*	57 027 000	88 067 000	61 557.98	0.00074	7 249.00	12.4
1929	1	14 500	2 030	29 485 000	10	14 540	3 566	51 850 000	81 285 000	53 386.39	0.00072	4 011.95	6.9

\* Includes Part III, May 1928, 288 pp

The cost of publications, as determined by the bills actually paid during the year, has been:

For Paper, Printing, etc., <i>Proceedings</i> , Part I.....	\$32 073.33
For Paper, Printing, etc., <i>Proceedings</i> , Part II.....	3 170.39
For Paper, Printing, etc., of 20 872 Extra Copies of Papers, Reports, Discussions, and Memoirs.....	1 439.81
For Paper, Printing, etc., <i>Transactions</i> , Vol. 93.....	12 670.61
For 5 850 Extra Copies of Separate Papers for <i>Transactions</i> , Vol. 93.....	1 263.42
For Binding, Envelopes, etc., <i>Proceedings</i> , Part I.....	6 890.45
For Binding, etc., <i>Proceedings</i> , Part II.....	741.24
For Binding,* Boxes, etc., <i>Transactions</i> , Vol. 93.....	2 630.35
For Plates and Cuts.....	4 011.95
For Year Book.....	5 824.05
For Engineering Manual No. 2.....	709.28
For Copyright and Sundry Expenses.....	111.70
 Total .....	\$71 536.58
Deduct amount received from sale of publications.....	7 831.24
 Net expenditures for publications in 1929.....	\$63 705.34

\* Paper binding only.

### EMPLOYMENT SERVICE

The Employment Service now has offices in New York, N. Y., Chicago, Ill., and San Francisco, Calif.

The number of men placed during 1929 has averaged about 139 per month. The following table shows the registrations and placements in the three offices:

### REGISTRATIONS AND PLACEMENTS IN THE NEW YORK, CHICAGO, AND SAN FRANCISCO OFFICES IN 1929.

Month.	MEN REGISTERED.				MEN PLACED.			
	New York.	Chicago.	San Francisco.	Total.	New York.	Chicago.	San Francisco.	Total.
January.....	103	101	152	356	81	28	35	144
February.....	91	69	107	267	81	25	40	146
March.....	113	96	133	342	84	27	35	146
April.....	123	78	145	346	70	26	56	152
May.....	127	86	121	334	70	22	42	134
June.....	131	75	110	316	75	20	40	135
July.....	126	64	155	345	70	18	43	131
August.....	64	58	109	231	70	22	58	145
September.....	94	49	118	261	61	20	51	132
October.....	102	41	126	269	70	18	60	148
November.....	106	71	118	295	72	14	45	131
December.....	73	53	140	266	71	15	34	120
 Total.....	1 253	841	1 534	3 628	875	255	534	1 664

## MEETINGS

Six meetings of 9 sessions were held during the year, as follows: At the Annual Meeting, at New York, N. Y., 1 (2 sessions); at the Spring Meeting at Dallas, Tex., 1 (3 sessions); at the Annual Convention at Milwaukee, Wis., 1 (2 sessions); at the Fall Meeting at Boston, Mass., 1 (2 sessions); and 2 regular meetings of the Society, held in the Engineering Societies Building, New York, N. Y.

At these meetings, there were presented 14 formal papers, many of which were illustrated with motion pictures and lantern slides, and 5 Addresses.

During the year, there were published 8 Progress Reports of Special Committees, some of which were presented at the Annual Meeting, and 19 papers that were not presented at any meeting of the Society.

The number of members and others who took part in the preparation and discussion of these papers, addresses, and reports of Special Committees was approximately 185. This does not include those who took part in the preparation and discussion of papers and reports of Committees presented at the meetings of the Technical Divisions, which meetings are listed on pages 15 to 18.

The total attendance at the six meetings of the Society was about 3,835. The registered attendance at the Annual Meeting was 1,706; at the Spring Meeting, 519; at the Annual Convention, 349; and at the Fall Meeting, 810.

The dates of the meetings of the Society during the year, together with the titles of papers (abstracts), addresses, reports of Special Committees, etc., presented thereat, are as follows:

January 16, 1929, Progress Reports of the Special Committees on Concrete and Reinforced Concrete Arches,\* Steel Column Research,† Irrigation Hydraulics,‡ and Soils,§ and the Final Report of the Special Committee on Impact in Highway Bridges.||

April 24, 1929 (Two Sessions),¶ "Economic Changes in Industrial Life," by Martin J. Insull, Esq.; "Modern Methods of Deep Well Drilling," by W. W. Scott, Esq.; "Development of the Oil and Gas Industry in the Southwest," by J. Edgar Pew, Esq.; and, "Oil and Gas Pipe Line Construction," by E. C. Kincade, Esq.

July 10, 1929 (Two Sessions),\*\* "Engineering and Engineering Education",†† Address by Anson Marston, President, Am. Soc. C. E.; "Waterway Transportation from the Viewpoint of Operation,"‡‡ by Maj. Gen. Thomas Q. Ashburn, U. S. A.; "Relation Between Rail and Waterway Transportation in the United States,"‡‡ by E. A. Hadley, M. Am. Soc. C. E.; "Railway Versus Waterways: An Economic Comparison,"‡‡ by L. D. Cornish, M. Am. Soc.

\* *Proceedings*, Am. Soc. C. E., March, 1929, Papers and Discussions, p. 711.

† *Loc. cit.*, February, 1929, Papers and Discussions, p. 357.

‡ *Loc. cit.*, March, 1929, Society Affairs, p. 94.

§ *Loc. cit.*, p. 99.

|| *Loc. cit.*, March, 1929, Papers and Discussions, p. 727.

¶ *Loc. cit.*, August, 1929, Papers and Discussions, p. 1367, *et seq.*

\*\* *Loc. cit.*, October, 1929, Papers and Discussions, p. 1993, *et seq.*

†† *Transactions*, Am. Soc. C. E., Vol. 93 (1929), p. 1736.

‡‡ See Papers and Discussions.

C. E.; "Water Transportation with Particular Reference to Terminals," by Rufus W. Putnam, M. Am. Soc. C. E.; and "Federal Waterway Development," by Lt.-Col. George R. Spalding, U. S. A.

October 9, 1929 (Two Sessions)\* "Development of the Boston Metropolitan District," by Frederic H. Fay, M. Am. Soc. C. E.; "Administration of the Boston Metropolitan District" by Davis B. Keniston, Esq.; "Park System of the Boston Metropolitan District," by Edwin H. Rogers, M. Am. Soc. C. E.; "Metropolitan Water Supply," by Frank E. Winsor, M. Am. Soc. C. E.; "Transportation in the Metropolitan District," by Edward Dana, Esq.; and "Sewerage in the Boston Metropolitan District," by X. Henry Goodnough, M. Am. Soc. C. E.

The papers and reports of Committees published in *Proceedings*, but not presented at any meeting of the Society, were as follows:

January, 1929, "Elastic Equilibrium in the Theory of Structures," by H. S. Richmond, Esq.; "Studies of Shear in Reinforced Concrete Beams," by T. D. Mylrea, M. Am. Soc. C. E.; and "The Graphical Solution of a Correlation Table," by Weston S. Evans, Esq.

February, 1929, "Experiments on Spillway Discharge of the Keokuk Dam", by Floyd A. Nagler and Albion Davis, Members, Am. Soc. C. E.; and "Water Power Leases", by William H. Cushman, M. Am. Soc. C. E.

March, 1929, "Use of Water on Federal Irrigation Projects," by E. B. Debler, M. Am. Soc. C. E.

April, 1929, "Experiments to Determine Rate of Evaporation from Saturated Soils and River-Bed Sands," by Ralph L. Parshall, Assoc. M. Am. Soc. C. E.

May, 1929, "Water Supply from Rainfall on Valley Floors," by A. L. Sonderegger, M. Am. Soc. C. E.; and "Predetermining the Extent of a Sewage Field in Sea Water," by A. M. Rawn and H. K. Palmer, Members, Am. Soc. C. E.

August, 1929, "Silt Transportation by Sacramento and Colorado Rivers, and by the Imperial Canal," by C. E. Grunsky, Past-President, Am. Soc. C. E.; "Measuring Materials for Concrete," by William Mayo Venable, M. Am. Soc. C. E.; and "Analytical Solution of Masonry Domes: Unbalanced Loads," by David C. Coyle, M. Am. Soc. C. E.

September, 1929, Report of the Special Committee on Charges and Method of Making Charges for Professional Services.

October, 1929, "Experimental Research on Vibration Dampers and Insulators," by Stephen E. Slocum, M. Am. Soc. C. E.; "Spillway Discharge Capacity of Wilson Dam," by Louis G. Puls, Assoc. M. Am. Soc. C. E.; and Report of the Committee on Essential Facts Concerning the Failure of the St. Francis Dam.

November, 1929, "The Behavior of a Reinforced Concrete Arch During Construction," by Searcy B. Slack, M. Am. Soc. C. E.; and "Adjustment of Transit and Stadia Traverses," by Howard S. Rappleye, Assoc. M. Am. Soc. C. E.

\* *Proceedings*, Am. Soc. C. E., December, 1929, Papers and Discussions, p. 2475, *et seq.*

December, 1929, "Effect of Turbulence on the Registration of Current Meters," by David L. Yarnell and Floyd A. Nagler; and General Specifications for Steel Railway Bridges, Prepared by Conference Committees of the American Society of Civil Engineers and the American Railway Engineering Association.

### MEDALS AND PRIZES

The award of Medals and Prizes for the year ending July, 1929, was as follows:

The Norman Medal to G. T. Rude, M. Am. Soc. C. E., for his paper entitled "Tides and Their Engineering Aspects".

The Thomas Fitch Rowland Prize to D. B. Steinman and William G. Grove, Members, Am. Soc. C. E., for their paper entitled "The Eye-Bar Cable Suspension Bridge at Florianopolis, Brazil".

The James Laurie Prize to R. H. Keays, M. Am. Soc. C. E., for his paper entitled "Construction Methods on the Moffat Tunnel".

The Arthur M. Wellington Prize to F. C. Carstarphen, M. Am. Soc. C. E., for his paper entitled "Aerial Tramways".

The Collingwood Prize for Juniors to William J. Cox, Assoc. M. Am. Soc. C. E., for his paper entitled "Automobile Hazard in Cities and Its Reduction".

### LOCAL SECTIONS

There are at present 50 Local Sections, three of which were authorized by the Board of Direction during 1929 as follows:

Florida Section,	Authorized	January 14, 1929
New Mexico Section,	"	October 7, 1929
Porto Rico Section,	"	October 8, 1929

### TECHNICAL DIVISIONS

Meetings of the City Planning, Construction, Highway, Irrigation, Power, Sanitary Engineering, Structural, Surveying and Mapping, and Waterways Divisions have been held during the year.

The membership has shown an active interest in the work and activities of the various Divisions as is indicated by the twenty-three Division programs given at the Quarterly Meetings. Abstracts of the papers and discussions and the reports of Committees presented at these meetings have been published in March, August, October, and December *Proceedings*, respectively.

The meetings of the Divisions during the year, together with the papers and reports of Committees presented thereat, are as follows:

#### City Planning Division

January 17, 1929, "Relation of the Lawyer to the Other Professions Engaged in City Planning," by Alfred Bettman, Esq.; "Westchester County

Planning and Park System," by Jay Downer, M. Am. Soc. C. E.; and Report on the "Status and Progress in the Art of City Planning," by Stephen Child, M. Am. Soc. C. E.

April 25, 1929, "City Planning Programs, with Special Reference to the Larger Cities," by Alexander F. Weisberg, Esq.; and "City Planning as Related to the Smaller Cities," by E. A. Wood, M. Am. Soc. C. E.

July 11, 1929, "County and Regional Planning," by E. A. Howard, Esq.; "The City Plan of Kenosha, Wisconsin," by W. E. O'Brien, Esq.; and "Legal Problems Involved in Establishing Set-Back Lines," by Clifton Williams, Esq.

October 10, 1929, "The Plan of Boston: A Capital City," by Arthur C. Comey, M. Am. Soc. C. E.; "City Planning Education for the Professional City Planner," by Henry Vincent Hubbard, Esq.; and "City Planning Education for Public Officials and the General Public," by Charles R. Gow, M. Am. Soc. C. E.

### Construction Division

January 17, 1929, "Construction of James River Bridge Project,"\* by R. C. Wilson, Esq., and Herbert B. Pope, Assoc. M. Am. Soc. C. E.; Reports of Committees on Construction Plant and Methods for Highways, Hydro-Electric Installations, Concrete Buildings, Steel Buildings, and Concrete Bridges.

July 11, 1929, Reports of Committees on Construction Plant and Methods for Steel Frame Buildings, Concrete Buildings, Concrete Roads, Hydro-Electric Installations, and Concrete Bridges.

July 11, 1929 (Joint Session with Waterways Division), "Construction Methods on the Welland Ship Canal," by E. G. Cameron, Esq.; "Construction Methods on the Ohio and Missouri Rivers," by F. E. Lamphere, M. Am. Soc. C. E.; "Output Factors for Machine Excavators," by A. E. Holecomb, M. Am. Soc. C. E.; and "Lake Front Improvements of Chicago, Illinois: Construction Plant and Methods," by J. E. Cahill, M. Am. Soc. C. E.

### Highway Division

January 17, 1929, "Problems of Traffic Regulation and Control," by Leslie G. Holleran, M. Am. Soc. C. E.; "Responsibility of the Highway Engineer to the Public," by A. R. Hirst, M. Am. Soc. C. E.; and Report of Executive Committee on "Status and Progress in the Art of Highway Engineering."

April 25, 1929 (Joint Session with Construction Division), "Highway Location Problems," by Gibb Gilchrist, M. Am. Soc. C. E.; "Highway Location Problems," by A. R. Losh, Assoc. M. Am. Soc. C. E.; "Equitable Distribution for Highway Purposes of Motor Vehicle License Fees and Gasoline Tax," by O. E. Carr, M. Am. Soc. C. E.; and "Concrete Road Building Plant and Its Operation," by Tyree L. Bell, Jr., Assoc. M. Am. Soc. C. E.

July 11, 1929, "Equitable Distribution for Highway Purposes of Motor Vehicle License Fees and Gasoline Taxes," by George B. Sowers, M. Am. Soc.

\* *Proceedings, Am. Soc. C. E.*, November, 1929, Papers and Discussions, p. 2357.

C. E.; and "Super-Highway Development in the Milwaukee Metropolitan Area," by Joseph H. Stransky, Esq.

October 10, 1929, "Equitable Distribution for Highway Purposes of Motor Vehicle License Fees and Gasoline Taxes," by George H. Henderson, M. Am. Soc. C. E.; "Equitable Distribution for Highway Purposes of Motor Vehicle License Fees and Gasoline Taxes," by Frederic E. Everett, M. Am. Soc. C. E.; "Traffic Control in Massachusetts," by Maxwell Halsey, Esq.; and "Highway Beautification," by James H. Taylor, Esq.

#### Irrigation Division

January 17, 1929, Report on "Status and Progress in the Art of Irrigation Engineering," by S. T. Harding, M. Am. Soc. C. E.

April 25, 1929, "Irrigation in Mexico," by Sr. Ignacio Lopez Bancalari; "Seepage Prevention and Drainage in the El Jardin District," by Ernest L. Myers, M. Am. Soc. C. E.; "Silting and Life of Southwestern Reservoirs," by R. G. Hemphill, Assoc. M. Am. Soc. C. E.; and "Problems of the International Water Boundary Commission," by L. M. Lawson, M. Am. Soc. C. E.

#### Power Division

January 17, 1929, "Constitution of Water and Nature of Ice," by Howard T. Barnes, Esq.; and "Rocky River Hydro-Electric Development," by Joel D. Justin, M. Am. Soc. C. E.

October 10, 1929, "Kaplan Turbines at the Ryburg-Schwarstadt Plant on the Upper Rhine," by Dr. Ing. D. Thoma.

#### Sanitary Engineering Division

January 17, 1929, "Milwaukee Sewage Disposal Plant," by Darwin W. Townsend, M. Am. Soc. C. E.; "Sanitary or Public Health Engineer?" by C. M. Spofford, M. Am. Soc. C. E.; and Progress Reports of the Committees on New Jersey Sewage Experiments,\* Friction of Sewage Sludge in Pipes,† and Filtering Materials for Water and Sewage Works.‡

April 25, 1929, "Fort Worth Sewage Disposal Plant's Improvement," by W. S. Mahlie, Esq.; "Unusual Features of San Antonio, Texas, Sewage Disposal Plant," by H. R. F. Helland, M. Am. Soc. C. E.; "Experiences in Design and Operation of Plants in East Texas," by H. L. Thackwell, Assoc. M. Am. Soc. C. E.; and "Distribution of Costs of Sewerage Systems," by W. S. Tanner, Assoc. M. Am. Soc. C. E.

#### Structural Division

January 17, 1929, "Experimental Investigation of Concrete Arches," by W. M. Wilson, M. Am. Soc. C. E.; and "Yadkin River Bridge Tests," by Clyde T. Morris, M. Am. Soc. C. E.

\* *Proceedings*, Am. Soc. C. E., March, 1929, Papers and Discussions, p. 599.

† *Loc. cit.*, September, 1929, Papers and Discussions, p. 1773.

‡ *Loc. cit.*, p. 1799.

October 10, 1929, "The Lake Champlain Bridge," by Charles M. Spofford, M. Am. Soc. C. E.; and "Research in Soil Mechanics at the Massachusetts Institute of Technology," by Glennon Gilboy, Jun. Am. Soc. C. E.

#### Surveying and Mapping Division

January 17, 1929, Symposium on "Construction and Location Surveys"; "Surveys for Bridge Locations—Port of New York Authority," by Robert Hoppen, Jr., M. Am. Soc. C. E. and A. H. Morrill, Assoc. M. Am. Soc. C. E.; "Triangulation Surveys for Carquinez Bridge, California," by G. J. Calder, M. Am. Soc. C. E.; and "Surveys for the Holland Tunnel," by Charles L. Crandall, M. Am. Soc. C. E.

April 25, 1929, "Problems in Re-Tracing Old Survey Lines in Texas," by B. F. Williams, M. Am. Soc. C. E.; and "Airplane Surveys for Pipe Line and Transmission Line Location," by Stuart Moir, Esq.

October 10, 1929, "Surveys for Swift River Reservoir of the Boston Metropolitan District Water Supply," by N. Le Roy Hammond, Esq.; "Leveling for Tunnels and Reservoirs for the Boston Metropolitan District Water Supply," by Laroy G. Harris, Esq.; and "Triangulation in Massachusetts and Its Connection with Land Court Registration," by Richard K. Hale, Assoc. M. Am. Soc. C. E.

#### Waterways Division

January 17, 1929, Report of the Executive Committee on the "Status and Progress in the Art of Waterways Engineering."

July 11, 1929, "Engineering Features of the Welland Ship Canal," by Frank E. Sterns, M. Am. Soc. C. E.; and "Engineering Features of the Illinois Waterway," by Walter M. Smith, M. Am. Soc. C. E.

#### Membership of Technical Divisions

There are now 12 019 members enrolled in the Technical Divisions as follows:

City Planning Division.....	1 430
Construction Division .....	2 075
Highway Division .....	1 883
Irrigation Division .....	881
Power Division .....	663
Sanitary Engineering Division.....	1 451
Structural Division .....	2 296
Surveying and Mapping Division.....	637
Waterways Division .....	703

#### STUDENT CHAPTERS

There are at present 15 students who have taken advantage of the By-Law which enables them to continue affiliation with the Chapters until the first day of the second January following graduation.

**New Student Chapters**

The Student Chapters now number 96, the total membership of which is 6 242. Three new Chapters were organized during the year:

Clarkson College of Technology  
Tufts College  
University of New Mexico.

**FINANCES**

A payment of \$10 000 was made on the mortgage. There is cash on hand in the amount of \$34 362.53, exclusive of the various Trust Funds, which amount to \$7 317.95. The sum of \$44 595.15 has temporarily been invested in short-term securities.

The reports of the Secretary and Treasurer are appended.

By order of the Board of Direction,

GEORGE T. SEABURY, *Secretary.*

January 13, 1930.

**REPORT OF THE SECRETARY FOR THE  
TO THE BOARD OF DIRECTION OF THE**

**GENTLEMEN:**—I have the honor to present a statement of Receipts and Disbursements for the fiscal year of the Society, ending December 31, 1929. There is also appended a general Balance Sheet showing the condition of the affairs of the Society.

Respectfully submitted,

GEORGE T. SEABURY,

*Secretary.*

**RECEIPTS**

Balance on hand January 1, 1929.....		\$69 459.52*
Entrance Fees.....	\$20 475.00	
Current Dues.....	176 748.14	
Past Dues.....	12 712.25	
Advance Dues.....	63 003.11	
Binding of <i>Transactions</i> .....	9 488.00	
Badges.....	6 602.00	
Certificates of Membership.....	715.00	
Sale of Publications.....	7 831.24	
Interest on Deposit.....	987.38	
Interest on Investments.....	4 684.61	
Interest Accrued.....	1 351.04	
Annual Meeting.....	5 314.20	
Postage.....	240.21	
Miscellaneous.....	1 670.89	
Income from 57th Street Property:		
Credited to General Receipts.....	\$40 000.00	
"    " 57th Street Property Fund.....	12 500.00	52 500.00
Interest on Securities.....		1 014.84

The Freeman Fund:		
Income .....	1 864.50	
Principal .....	174.05	
The Alfred Noble Memorial Fund:		
Principal .....	\$16 023.49	
Interest on Invested Funds.....	349.36	16 372.85
The Phebe Hobson Fowler Fund:		
Interest on Securities.....		210.00
From Engineering Foundation in Credit to:		
Special Committee on Steel Column Research.....	2 000.00	
Special Committee on Concrete and Reinforced Concrete Arches.....	1 500.00	
For City Planning Division, 1929 Dues.....		85.00
For Surveying and Mapping Division, 1929 Dues.....		15.00
Maturity of Bonds.....		124 887.22
		<u>512 446.53</u>

<u>*Society Funds in Chase National Bank, 23d Street.      \$56 633.20</u>		
"    " " " " " " 41st Street.      500.00		
Petty Cash (in hands of Secretary).....	5 000.00	\$62 133.20
Dues collected for:		
Power Division, 1923-1928.....	\$1 910.37	
City Planning Division, 1926-1928.....	270.00	
Surveying and Mapping Division, 1928.....	25.00	2 205.37
For Special Committee on Stresses in Railroad Tracks.....		1 352.63
For Special Committee on Steel Column Research.....		395.68
The Rudolph Hering Medal.....		455.97
The Freeman Fund:		
Principal .....	\$81.40	
Income .....	585.68	667.08
57th Street Property Fund.....		949.59
Soils Committee (special account).....		1 300.00
		<u>\$69 459.52</u>

## YEAR ENDING DECEMBER 31, 1929

## AMERICAN SOCIETY OF CIVIL ENGINEERS.

## DISBURSEMENTS

Salaries of Officers.....	\$21 722.24
Retirement Allowances.....	6 954.48
Clerical Help.....	84 717.28
Publications.....	71 536.58
Binding of <i>Transactions</i> .....	4 846.86
General Printing.....	1 981.53
Badges.....	4 722.94
Certificates of Membership.....	490.55
Annual Prizes.....	228.00
Meetings:	
Annual Meeting.....	9 582.55
Annual Convention.....	1 727.36
Annual Spring Meeting.....	1 779.97
Annual Fall Meeting.....	1 532.31
Monthly Meetings.....	446.48
Local Sections.....	11 261.00
Technical Divisions:	
Sanitary Engineering.....	1 804.48
Power.....	381.02
Irrigation.....	898.57
Highway.....	936.67
City Planning.....	488.26
Structural.....	824.01
Construction.....	1 376.83
Waterways.....	523.38
Surveying and Mapping.....	714.33
Traveling Allowance of Officers.....	13 667.28
Traveling Allowance of Standing Committees.....	3 797.24
Work of Committees:	
Mileage.....	3 019.56
Other Expenditures.....	8 303.19
Reading Room.....	492.76
Employment Service.....	1 815.00
Office Supplies.....	3 983.47
Postage.....	11 740.17
Furniture and Office Equipment.....	3 475.77
Current Business.....	4 722.30
United Engineering Society:	
General Assessment.....	11 265.96
Library.....	9 028.80
Telephone.....	1 534.43
Payment on Mortgage.....	10 000.00
Interest on Mortgage.....	3 250.00
Premium on Insurance.....	209.85
Miscellaneous.....	918.64
Purchase of Bonds.....	171 317.37
Interest Accrued.....	2 289.79
Student Chapters.....	1 615.98
The Freeman Fund:	
Income and Expenses.....	2 000.00
Principal.....	255.00
57th Street Property Fund:	
Purchase of Securities.....	14 027.75
American Engineering Council.....	10 182.75
The Phebe Hobson Fowler Fund:	
Income and Expenses.....	58.88
The Alfred Noble Memorial Fund:	
Invested Funds.....	15 416.25
Income and Expenses.....	358.70 \$540 225.57
Cash on hand December 31, 1929.....	41 680.48*
	<hr/>
	\$581 906.05
<hr/>	<hr/>
*Society Funds in Chase National Bank, 23d Street. ....	\$28 862.53
" " " " " 41st Street. ....	500.00
Petty Cash (in hands of Secretary).....	5 000.00
	\$34 362.53
<hr/>	<hr/>
Dues Collected for:	
Power Division, 1923-1928.....	\$1 910.37
City Planning Division, 1926-1929.....	355.00
Surveying and Mapping Division, 1928-1929.....	40.00
	2 305.37
For Special Committee on Stresses in Railroad Tracks.....	1 120.28
The Rudolph Hering Medal.....	455.97
The Freeman Fund:	
Principal.....	\$0.45
Income.....	950.18
	950.63
57th Street Property Fund.....	436.88
Soils Committee (special account).....	1 300.00
Alfred Noble Memorial Fund.....	597.90
Phebe Hobson Fowler Fund.....	151.12
	<hr/>
	\$41 680.48

**BALANCE SHEET**  
**ACCOMPANYING THE REPORT**

**ASSETS**

*Real Estate :*

Interest in real estate and other assets of United Engineering Society, exclusive of trust funds..	\$493 352.60
220 West 57th St., New York, N. Y., at estimated value, net of depreciation.....	621 841.84
	\$1 115 194.44

*Equipment :*

Furniture and office equipment.....	\$70 788.54
Less, reserve for depreciation.....	58 494.12
	12 294.42

*Library :*

Cash expended for books, etc.....	\$22 122.22
Donations (estimated).....	72 310.83
	94 433.05

Short term investments, at cost December 31, 1929.

44 595.15

*Fund Investments :*

Library and Prize Funds, etc.:

U. S. Liberty, New York City, and R. R. bonds, at cost.....	\$38 809.75
Uninvested cash.....	81.03

\$38 890.78

The Freeman Fund :

Securities, at cost.....	\$25 492.01
Uninvested cash.....	.45

25 492.46

Phebe Hobson Fowler Fund :

Securities, at 50 pct. of par.....	10 000.00
------------------------------------	-----------

The Fifty-seventh Street Property  
Fund :

Securities, at cost.....	\$36 089.24
Uninvested cash.....	383.67
Accrued interest on investments..	498.44

36 971.35

Alfred Noble Memorial Fund :

Securities, at cost .....	\$15 416.25
Unexpended cash .....	52.24

15 468.49

126 823.08

*Working Assets :*

Publications on hand.....	\$19 689.59
Unexpired insurance premiums.....	594.31

20 283.90

*Current Assets :*

Cash :	
In banks, general.....	\$29 315.81
In hands of secretary .....	5 000.00
On deposit with U. S. Post Office.....	200.00
In banks, for special purposes ( <i>per contra</i> )....	6 847.28
	41 363.09
Due from members, in arrears.....	18 176.97
Due from non-members .....	790.92
Accrued interest on investments :	
On general investments .....	\$1 427.52
On specific fund investments ( <i>per contra</i> ) .....	372.89
	1 800.41
Due from Alfred Noble Memorial Fund .....	9.34
	<u>\$1 475 764.77</u>

We have examined the accounts of the AMERICAN SOCIETY OF CIVIL  
estimate of the property and library valuations and book inventory of publi-  
sheet sets forth correctly the financial condition of the Society at that date.

NEW YORK, January 10, 1930.

DECEMBER 31, 1929

OF THE SECRETARY

## LIABILITIES AND FUNDS:

Mortgage payable, due February 1, 1932.....	\$60 000.00
Accrued interest on mortgage.....	1 250.00
1930 dues paid in advance.....	63 003.11

Unexpended balances of cash received for special purposes (*per contra*):

Committee on Stresses in Railroad Track.....	\$1 120.28
Soils Committee.....	1 300.00
Power Division.....	1 919.73
City Planning Division.....	345.00
Surveying and Mapping Division.....	50.00
Rudolph Hering Medal Fund.....	455.97
Freeman Fund income.....	950.18
Phebe Hobson Fowler Fund income.....	151.12
Alfred Noble Memorial Fund.....	555.00
	6 847.28

Interest accrued but not yet received on funds invested in securities and saving banks (*per contra*):

Rudolph Hering Medal Fund .....	\$ 17.23
Power Division .....	69.66
City Planning Division.....	12.52
Alfred Noble Memorial Fund.....	273.48
	372.89

## Funds:

Herbert Stewart Library Fund.....	\$ 2 000.00
Joseph G. Swift Library Fund.....	1 000.00
Compounded Dues Fund.....	15 480.00
Norman Medal Fund.....	1 000.00
Rowland Prize Fund.....	1 222.50
Collingwood Prize Fund.....	1 000.00
Arthur M. Wellington Prize Fund..	2 150.00
Fellowship Fund.....	13 038.28
Hiram F. Mills Legacy.....	2 000.00
	\$38 890.78
The Freeman Fund.....	25 493.46
Phebe Hobson Fowler Fund.....	10 000.00
The Fifty-seventh Street Property Fund .....	36 971.35
Alfred Noble Memorial Fund .....	15 468.49
	126 823.08
Surplus, including amount arising from revaluation of real estate..	1 217 468.41
	\$1 475 764.77

ENGINEERS for the year ended December 31, 1929, and (assuming that the cations on hand are correct) we certify that, in our opinion, the above balance

LYBRAND, ROSS BROS. & MONTGOMERY,  
Accountants and Auditors.

**REPORT OF THE TREASURER OF THE  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
FOR THE YEAR ENDING DECEMBER 31, 1929**

In compliance with the provisions of the Constitution, I have the honor to present the following report:

Cash on hand January 1, 1929..... \$69 459.52

**RECEIPTS**

From Current Sources, January 1 to December 31..	\$308 427.35
Rent from 57th Street Property.....	52 500.00
From Engineering Foundation for:	
Special Committee on Concrete and Reinforced Concrete Arches .....	1 500.00
Special Committee on Steel Column Research..	2 000.00
The Freeman Fund Investment.....	1 864.50
The Phebe Hobson Fowler Fund:	
Interest on Securities.....	210.00
From the Alfred Noble Memorial Committee.....	16 023.49
Interest on Invested Funds.....	349.36
Interest on Society's Temporary Investments.....	4 684.61
Maturity of Various Securities.....	124 887.22
	<hr/>
	512 446.53

**DISBURSEMENTS**

Payment of Bills by Audited Vouchers.....	\$344 880.45
for Current Business, January 1 to December 31	
Payment on Mortgage, 57th Street Property.....	10 000.00
Purchase of Securities.....	185 345.12
Balance on Hand, December 31, 1929:	
In Chase National Bank.....	\$36 680.48
In hands of Secretary.....	5 000.00
	<hr/>
	41 680.48
	<hr/>
	\$581 906.05
	<hr/>
	\$581 906.05

Respectfully submitted,

OTIS E. HOVEY,  
*Treasurer.*

## Annual Reports of the Technical Divisions

### Annual Report of the Irrigation Division for 1929

Under the rules of procedure of the Society one member of the Executive Committee of the Irrigation Division is retired each year, requiring an election to fill such vacancy. Mr. Lynn Crandall was retired and R. V. Meikle, Chief Engineer of the Turlock Irrigation District, was selected to take his place.

As a result of a number of conferences between the Board of Direction and the Society's Committee on Technical Procedure a mandate was issued by the Board requiring the selection of the Chairmen of the Divisions of the Society for periods of two years. These Chairmen are members of the Technical Procedure Committee which largely controls its technical policy, and it was considered essential that the membership of this Committee should be established so as to obtain a continuity of policy.

The Executive Committee held one meeting at Dallas, Tex., during the year, at which four members were present. It later distributed a questionnaire among members of the Irrigation Division asking for suggestions concerning the most desirable work to be undertaken by the Division in the future. Thirty-four replies were received. The greater number of requests favored the continuation of the study of the duty of water covering consumptive use, drainage, and the effect of rainfall on ground-water supplies. This latter includes the absorption of flood waters by river channels. Other subjects suggested were: The study of the quality of water and its relation to plant growth; the feasibility of sewage irrigation; and the appointment of a committee from the Division for the purpose of endeavoring to improve the methods of the U. S. Weather Bureau, particularly in observing temperatures and precipitation. There is a multitude of voluntary Weather Bureau stations throughout the West, which, as a rule, are not inspected, and the results from which are apt to be erroneous and misleading. There also should be a better distribution of points of observation and annual inspection of all stations for which the records are published. Attention is called to the excessive delays in the publications of the records of stream flow of the Hydrographic Branch of the U. S. Geological Survey. The Society should request prompt publication of these valuable records and also an increased appropriation for the work of stream gauging which is fundamental for all irrigation and other hydraulic studies.

The replies to the questionnaire indicated that there was about an equal division of opinion on the desirability of manuals. A decided majority favored the appointment of small committees for studying the various subjects, the members of which should be so localized as to permit of occasional meetings for the purpose of discussion and the making of reports.

The recommendations contained in the questionnaire will be given careful consideration by the Executive Committee when it organizes the work of the Division for the year 1930.

At the meeting of the Executive Committee at Dallas a resolution was adopted providing that the members of each of the committees of the Irrigation Division, including the Chairman, should be appointed for one year only, the purpose being to permit of the addition of new members who indicated active interest in the subject under consideration and for the elimination of those who lack interest or who were inactive in the work of the committee. Consequently, following the re-organization of the Executive Committee for the year 1930 the members of the various committees of the Division will then be re-appointed.

#### DIVISION MEETINGS

Following the usual policy, but one meeting of the Division was held in 1929. This occurred at Dallas on April 25, concurrently with the Spring Meeting of the Society. An attendance of sixty showed the interest in irrigation matters, even on the extreme eastern borders of the semi-arid region. Four papers were read and, later, three of them were abstracted in *Proceedings*\* and the fourth will appear in *Proceedings* at some future date. The next meeting of Irrigation Division will be held in Sacramento, Calif., in April, 1930, at the time of the regular Spring Meeting of the Society.

#### PROGRESS REPORTS OF STANDING COMMITTEES

##### *National Reclamation Policy.*—

George M. Bacon,	J. B. Lippincott, <i>Chairman</i> ,	W. H. Code,
J. A. Elliott,		John E. Field,
C. E. Grunsky,		M. C. Hinderlider,
Burton Smith,		G. E. P. Smith,
J. C. Stevens,		R. K. Tiffany.

The report of this Committee was published in *Proceedings*, September, 1928. It was formally discussed at the meeting of the Division at San Diego, Calif., in October, 1928. A supporting statement by Chairman J. B. Lippincott, as well as one relative thereto by Elwood Mead, M. Am. Soc. C. E., Director of the U. S. Bureau of Reclamation, was published in *Proceedings*, May, 1929. Since that time the report has been under continuous discussion in *Proceedings* with the date of closure marked "Uncertain". The San Diego meeting decided to vote on the adoption of this report by paragraph after the completion of the discussion in *Proceedings*. This action was reconsidered at Dallas, and it was there decided to vote on the report as a whole, because otherwise a confused conclusion would be apt to be reached.

The World Engineering Congress held in Tokyo, Japan, discussed the subject of the relation of various Governments to irrigation development, and adopted the following resolution:

\* *Proceedings*, Am. Soc. C. E., August, 1929, Papers and Discussions, pp. 1439 *et seq.*

**"RESOLUTION No. 2**

"Whereas it is understood that the Netherlands Royal Institute of Engineers is willing to take the lead in the investigation of certain irrigation questions of international importance.

*"Be It Resolved* that this Congress favors an international investigation, to be carried on under the auspices of said Institute Division Netherlands East India, for report to the next World Engineering Congress on the following questions:

*"First: What subsidies, direct or indirect are paid by various Governments to secure the construction of large irrigation and flood control and drainage works and with what justification?"*

*Advancement in the Art of Irrigation Engineering.—*

A report was made by Chairman S. T. Harding for the year 1928 on this subject.\* It was decided by the Executive Committee of the Division that it was not advisable to make further reports relative thereto more frequently than once every two years, consequently there is no report for the year 1929.

*Interstate Water Rights.—*

M. C. Hinderliser, <i>Chairman</i> ,	
George M. Bacon,	C. E. Grunsky,
Frank C. Emerson,	C. S. Heidel,
A. L. Fellows,	R. I. Meeker.

The Chairman of this Committee has made a most interesting report† in which conferences and accomplishments of international water commissions have been reviewed. Attention is also called to the important fact that interstate water problems have become matters of grave importance in the East. Negotiations have developed into actual litigation between the State of New York on the one hand and the States of Pennsylvania and New Jersey on the other, relative to the head-waters of the Delaware River. The controversy over the diversion of water from the Great Lakes by the Chicago Sanitary District is also reviewed.

This report summarizes all the numerous controversies and conferences relative to interstate waters between the different Western States, and shows much detailed study.

*Drainage of Irrigated Lands.—*

Thomas H. Means, <i>Chairman</i> ,	
J. L. Burkholder,	H. S. Kleinschmidt,
L. M. Holt,	L. M. Lawson.

No report has been made during the current year by the Committee on the Drainage of Irrigated Lands, but it is proposed to continue the work during the coming year.

The Executive Committee has recommended that the previous report as published in *Proceedings*‡ be worked over and supplemented to form a Manual for the Division.

\* *Proceedings*, Am. Soc. C. E., March, 1929, Papers and Discussions, p. 705.

† See Papers and Discussions.

‡ *Proceedings*, Am. Soc. C. E., March, 1928, Society Affairs, p. 131.

*Co-Operation Between Federal and State Agencies.—*

F. C. Scobey, *Chairman*,  
 Harold Conkling, Charles S. Schofield,  
 M. R. Lewis, Fred D. Pyle,  
 Charles A. Bissell.

At the meeting of Executive Committee held in Dallas it was decided that current work of this Committee would form material for a "Manual" of the Division. This would give the membership a concise statement of each organization in the Federal and State service with which he would have to deal under certain circumstances, in order to consummate the water rights, rights of way, storage facilities, etc., for a new irrigation system or for the additional development of a going system. In certain cases the Federal and State agencies involved should then co-operate in the granting or refusal of the necessary requirements of the irrigation system in order to reduce to a minimum the delays and expense incidental to the development of irrigation systems entirely outside the actual construction of the works. Further development of irrigation will in large part be conditioned upon securing adequate water storage to conserve flood waters. This storage may be in surface or underground reservoirs. Surface reservoirs are generally back in the mountain areas. The release of this stored water can usually be adjusted to secure valuable hydro-electric energy. In the Western States most of the mountain areas are on land still in the public domain, or necessary rights of way for the flowage of the waters must be over such land. This is a typical situation in which the engineer, acting for his clients in co-operation with their attorney, must be prepared to make claims from both State and Federal agencies. In certain cases he must deal with four Federal agencies—Interior, Agriculture, War, and State Departments, represented by various commissions and bureaus, and as many State agencies, representing under various names, the water rights, fish conservation, forestry, and public utilities.

A Manual setting forth the organization, authority, personnel, local representation, duties, fees, time limits, and overlapping, should be a welcome addition to the library of every member of the Division. Material is being assembled toward such a Manual.

*Duty of Water.—*

S. T. Harding, *Chairman*,  
 Harry Barnes, R. I. Meeker,  
 Lynn Crandall, H. M. Murdock,  
 Augustus Griffin, R. L. Parshall,  
 Charles R. Hedke, W. L. Powers,  
 O. W. Israelsen, G. E. P. Smith.

At the request of the Chairman, S. T. Harding, the past personnel is considered as holding membership pending the closure of discussion of the report\* on Consumptive Use of Water now current in *Proceedings*. It is proposed to re-organize this Committee with some other phase of duty of water problems as a major subject, when a policy has been adopted by the Society that will mitigate the overlapping of work by this Committee and similar work being sponsored by the Special Committee on Irrigation Hydraulics.

\* *Proceedings*, Am. Soc. C. E., April, 1928, Society Affairs, p. 214.

*Contribution to Ground-Water Supplies from Rainfall and by Spreading of Streams.—*

A. L. Sonderegger, *Chairman*,  
Walter E. Spear, Harold Conkling,  
Harry F. Blaney, K. Q. Volk.

Recent studies on ground-water supplies in the southwest portion of arid America where water is exceedingly scarce and valuable, led to the conclusion that very substantial quantities are added to these supplies, directly from the rain falling on the valley floors. The amount of such contribution is a matter of uncertainty and is most difficult to determine with accuracy. Various departments of the Federal, State, and Municipal Governments, as well as private parties, have been independently studying this question during the last decade and data are available bearing on the subject. These investigations have been carried on independently and with more or less of an overlap of effort. The Executive Committee of the Irrigation Division in appointing this Committee has endeavored to assemble some of the prominent investigators of this subject. Messrs. Walter E. Spear, Department Engineer, Board of Water Supply, New York City, has conducted investigations of this subject on Long Island for the City of New York; Harold Conkling, Chief of the Division of Water Rights of the State of California, has been making similar studies of the gravel-filled valleys of Los Angeles and Ventura Counties, California; Harry F. Blaney, Irrigation Engineer for the Department of Agriculture, has been conducting similar investigations in San Bernardino County, California; Kenneth Q. Volk is a consulting engineer who has been engaged in water supply work in Southern California during the past fifteen years, and has constructed and operated irrigation pumping plants and specialized in underground water; A. L. Sonderegger, the Chairman of the Committee, is a consulting engineer of Los Angeles, Calif., who has studied this subject for various municipalities and private interests throughout Southern California.

This Committee had a preliminary meeting in July, 1929, and a second meeting on December 16, at Berkeley, Calif., in which members of many of the State and Federal Departments were called in for conference, for the purpose of outlining the schedule for future work. A third meeting of the Committee has been called for January 20, 1930, to meet with these same representatives to consider further a program and permanent organization. The tendency is to broaden the work of this Committee to include such subjects as absorption of flood waters in river channels and possibly the return waters from irrigation.

J. B. LIPPINCOTT, *Chairman*,  
GEORGE M. BACON,  
J. L. BURKHOLDER,  
LYNN CRANDALL,  
FRED. C. SCOBY,  
*Executive Committee.*

## Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 73 and 74 of the Year Book for 1929.

### Book Notices\*

(January 2 to January 31, 1930)

**Asphalts and Allied Substances.** By Herbert Abraham. Third Edition. N. Y., D. Van Nostrand Co., 1929. 891 pp., illus., diagrams, tab., 9 x 6 in., fabrikoid. \$10.00.

In this extensive work of reference on asphalts, tars, and pitches, the chemistry and geology of bituminous materials, occurrences, methods of mining and refining, the properties of the various substances, the production of paving materials, roofing, and water-proofing compositions, etc., are described. One section is devoted to testing.

**Der Eisenbau, v. 1: Grundlagen der Konstruktion feste Brücken.** By Martin Grüning. (Handbibliothek für Bauingenieure.) Berlin, Julius Springer, 1929. 441 pp., illus., diagrams, 10 x 7 in., cloth. 48.-r.m.

This introductory text on structural engineering includes a discussion of materials, structural shapes and combinations, and stresses and safety, with a systematic course of instruction in bridge design.

**Graphische Statik, T. I.** By Otto Henkel. Berlin u. Lpz., Walter de Gruyter & Co., 1929. 150 pp., diagrams, 6 x 4 in., bound. 1,50 r.m.

These principles and their important practical applications are intended as an introduction to the subject and as a concise reference work.

**Shipways to the Sea; Our Inland and Coastal Waterways.** By Ernest S. Clowes. Balt., Williams & Wilkins Co., 1929. 196 pp., illus., 9 x 6 in., cloth. \$4.50.

This account of the development and present condition of American waterways covers each of the great systems, with plans for improvement and union into a great general system.

**Technische Museum als Stätten der Volksbelehrung.** By O. v. Miller. (Deutsches Museum. Abhandlungen und Berichte, Bd. 1, Heft 5.) Berlin, V. D. I. Verlag, 1929. 27 pp., illus., 8 x 6 in., paper. 1.-r.m.

This is a brief discussion of the place of the technical museum in popular education, by the Director of the famous Deutsches Museum at Munich.

**Timber Design and Construction.** By Henry S. Jacoby and Roland P. Davis. Second Edition. N. Y., John Wiley & Sons, 1930. 334 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.50.

The authors discuss, successively, joints and fastenings used in framing, wooden beams and columns, and wooden roof trusses. A chapter is devoted to examples of framing in buildings, bridges, and other structures, and another to timber tests and unit stresses.

\* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by the publishers.

**Transport Aviation.** By Archibald Black and others. Second Edition. N. Y., Simmons-Boardman Pub. Co., 1929. 348 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$5.00.

The present status of civil aviation, the cost of airplane operation, the probable development of the industry, the legal problems and other matters of that nature are discussed by fifteen specialists.

**Der Wasserbau, Bd. 1.** By Armin Schoklitsch. Wien, Julius Springer, 1930. 484 pp., illus., diagrams, tab., 11 x 8 in., bound. 52.-r.m.

The author's purpose is to present a comprehensive, balanced description of present-day hydraulic engineering. This, the first of two volumes, discusses meteorology, hydrology and hydraulics, soils, building materials, water supply, and sewerage.

**Das Wasserschloss bei Hochdruckspeicheranlagen.** By Otto Streck. Berlin, Julius Springer, 1920. 75 pp., diagrams, 10 x 7 in., paper. 9,50 r. m.

This discussion of surge-tank design presents the necessary formulas and data in a convenient form.

### Additions to the Reading Room

**Tables of Squares.** By John L. Hall, M. Am. Soc. C. E. Third Edition. Seattle, Wash., John Lincoln Hall, 1929. 115 pp., 5 $\frac{1}{2}$  x 3 $\frac{1}{4}$  in., leather. \$2.00.

This revised volume contains the true square of every foot and fractions thereof from 0 to 100 ft., advancing by 1/16 in., and up to 1 ft., advancing by 1/64 in., together with two tables of the decimal parts of a foot. It is of especial use to bridge and structural draftsmen.

## Current Civil Engineering Literature

### Key to Abbreviated References to Publications Indexed\*

Abbreviated References.	Publication.	Place.
Am. C. Inst.	American Concrete Institute, <i>Proceedings</i> (Y.)	Detroit
A. I. E. E.	American Institute of Electrical Engineers <i>Journal</i> (M.)	New York
A. R. E. A.	American Railway Engineering Association, <i>Proceedings</i> (Y.)	Chicago
A. S. T. M.	American Society for Testing Materials, <i>Proceedings</i> (Y.)	Philadelphia
Am. Soc. C. E.	American Society of Civil Engineers, <i>Proceedings</i> (M.)	New York
Am. Soc. Mun. Impvts.	American Society for Municipal Improvements, <i>Proceedings</i> (Y.)	New York
Am. W. W. Assoc.	American Water Works Association, <i>Journal</i> (M.)	Baltimore
Am. Wood Prs. Assoc.	American Wood Preservers Association, <i>Proceedings</i> (Y.)	Chicago
Ann. P. et C.	Annales des Ponts et Chaussées (Bl-M.)	Paris
Ann. T. P. Belg.	Annales des Travaux Publics de Belgique (Bl-M.)	Brussels
Assoc. Ing. Gand.	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.	Boston Society of Civil Engineers, <i>Journal</i> (M.)	Boston
Can. Engr.	Canadian Engineer (W.)	Toronto
City Plan.	American City Planning Institute (Q.)	Boston
Comwth. Engr.	Commonwealth Engineer (M.)	Melbourne
Conc.	Concrete (M.)	Chicago
Cornell C. E.	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.	Dock and Harbour Authority (M.)	London
Eng.	Engineering (W.)	London
Eng. & Contr.	Engineering and Contracting (M.)	Chicago
Eng. Inst. Can.	Engineering Institute of Canada, <i>Journal</i> (M.)	Montreal
Eng. N. R.	Engineering News-Record (W.)	New York
Engr. Soc. W. Pa.	Engineers' Society of Western Pennsylvania, <i>Journal</i> (M.)	Pittsburgh
Engr.	Engineer (W.)	London
Engrs. & Eng.	Engineers and Engineering, <i>Engineers' Club of Philadelphia</i> (M.)	Philadelphia
Gas und Wasser.	Gas und Wasserfach (M.)	Munich
Gen. Civ.	Le Génie Civil (W.)	Paris
Gesund. Ing.	Gesundheits Ingénieur (W.)	Munich
Hydraulic Eng.	Hydraulic Engineering (M.)	Los Angeles
Inst. C. E.	Institution of Civil Engineers <i>Minutes of Proceedings</i> (Q.)	London
Inst. Mun. & Co. Engrs.	Institution of Municipal and County Engineers, <i>Journal</i> (W.)	London
Int. Ry. Cong. Assoc.	International Railway Congress Association, <i>Bulletin</i> (M.)	Brussels
Land. Arch.	Landscape Architecture (Q.)	Boston
Mech. Eng.	Mechanical Engineering (M.), <i>Journal of the American Society of Mechanical Engineers</i>	New York
Mil. Engr.	Military Engineer (Bl-M.)	Washington
Min. & Metal.	Mining and Metallurgy (M.), <i>American Institute of Mining Engineers</i>	New York
N. E. W. W. Assoc.	New England Water Works Association, <i>Journal</i> (Q.)	Boston
N. Y. R. R. Club.	New York Railroad Club, <i>Proceedings</i> (M.)	Brooklyn
Oest. Ing. Arch. Ver.	Oesterreichischer Ingenieur und Architekten Verein, <i>Zeitschrift</i> (F.)	Vienna
Power	Power (W.)	New York
Public W.	Public Works (M.)	New York
Rev. Gen.	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.	Railway Age (W.)	New York
Ry. Eng. & Maint.	Railway Engineering and Maintenance (M.)	Chicago
R. & S.	Roads and Streets (M.)	Chicago
Schw. Bauz.	Schweizerische Bauzeitung (W.)	Zurich
Sci. Am.	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.	Société des Ingénieurs Civils de France, <i>Mémoires et Comptes Rendus</i> (Q.)	Paris
Tech. Gemeln.	Technisches Gemeindeblatt (F.)	Berlin
Ver. deu. Ing.	Verein deutscher Ingenieure, <i>Zeitschrift</i> (W.)	Berlin
W. W. & Sewer.	Waterworks and Sewerage (M.)	Chicago
West. Constr. N.	Western Construction News (F.)	San Francisco
West. Ry. Club.	Western Railway Club, <i>Proceedings</i> (M.)	Chicago
West. Soc. Engrs.	Western Society of Engineers, <i>Journal</i> (M.)	Chicago
Zeit. Bau.	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.	Zentralblatt der Bauverwaltung (W.)	Berlin

\* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

## A. Applied Sciences

### a. Processes of Calculation

#### 2. Graphical and Nomographical Processes

Nomogramm zur Ermittlung von Trägheitsmomenten.\* (Nomogram for Determining Moments of Inertia). Arthur Spiegler. Schw. Bauz. Dec. 7, '29.

## B. Applied Mechanics

### a. Mechanics of Solids

#### 1. Processes of Measurement and Method of Testing

Tests of Large-Size Columns of Three Grades of Structural Steel.\* R. S. Johnston. Eng. N. R. Dec. 26, '29.

Experimental Research on Vibration Dampers and Insulators.\* Discussion: J. P. Den Hartog and Francis G. Tammall. Am. Soc. C. E. Jan., '30.

#### 3. Jointed Systems

Tests of Electrically Welded Trusses.\* R. R. Blackwood. Comwlth. Engr. Nov., '29.

Querschnittbestimmung von Holzstäben auf Knickung.\* (Transverse Determination of Wood Streets in Buckling.) F. Flörke. Z. d. Bauver. Dec. 11, '29.

### b. Hydraulics

#### 2. Physical Hydraulics

La Commande et la Régulation à Distance des Débits Hydrauliques.\* (Remote Control and Regulation of Hydraulic Flow.) J. Blet. Gen. Civ. Nov. 30, '29.

Druckstöße in Pumpensteigleitungen.\* (Pressure Impacts in Pump Riser Lines.) O. Schnyder. Schw. Bauz. Serial beginning Nov. 30, '29.

Ueber das Verfahren von Gibson für die Wassermengenmessung in Druckleitungen veränderlichen Querschnitts.\* (On the Gibson Method for Measuring Water in Pressure Lines of Variable Cross Section.) B. Pavlov. Schw. Bauz. Dec. 14, '29.

#### 3. Industrial Pneumatics

Comparative Data on Steam and Electric Pumping Stations.\* J. F. Laboon. Am. W. W. Assoc. Dec., '29.

Hydraulic Laboratory Planned for Mississippi River Studies.\* Herbert D. Vogel. Eng. & Contr. Dec., '29.

Niagara Power. Discussion: F. P. Williams. Am. Soc. C. E. Jan., '30.

Beauharnois Hydro Power Development.\* Can. Engr. Jan. 7, '30.

The Rocky River Pumped-Storage Hydro-Electric Plant, Connecticut.\* Eng. Serial beginning Jan. 10, '30.

Hydro Power Development at Smoky Falls.\* Can. Engr. Jan. 14, '30.

High Rockfill Dam Designed with Jointed Concrete Face.\* I. C. Steele. Eng. N. R. Jan. 16, '30.

The Horse Mesa Staumauer am Salt River, Arizona, U. S. A.\* (The Horse Mesa Dam on Salt River, Arizona, U. S. A.) Paul Baumann. Schw. Bauz. Nov. 2, '29.

Das Projektierte Etzelwerk. (The Contemplated Etzel Plant.) H. Eggenberger. Schw. Bauz. Dec. 14, '29.

## C. Materials of Construction and General Processes

### a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

Admixtures in Concrete. John G. Ahlers. Conc. Dec., '29.

The Attainment of Durability in Concrete Structures.\* John F. Hough. Eng. Inst. Can. Dec., '29.

The Application of the Water-Cement Ratio Law for Proportioning Concrete in Heavy Mass Work as Practised by The Aluminum Company of America.\* I. E. Burks. Eng. Inst. Can. Dec., '29.

Central Mixing Plants for Concrete. Norman Beggs. (Paper read before Nat'l Sand & Gravel Assoc.) Can. Engr. Dec. 17, '29.

Durability of Portland Cement.\* Thaddeus Merriman. Eng. N. R. Jan. 9, '30.

Holz als Baukonstruktionsmittel.\* (Wood as a Structural Material.) K. Schacterle. Ver. Deu. Ing. Dec. 14, '29.

### c. Preservation and Use of Materials, Painting, Waterproofing

In Defense of Integral Waterproofing.\* R. E. Withrow. Conc. Dec., '29.

Teeröltränkung von Wasserbauholzern.\* (Tar Oil Impregnation of Wood for Use in Water.) Hagen. Z. d. Bauver. Dec. 11, '29.

Dauerversuche an Werkstoffen.\* (Fatigue Tests on Materials.) P. Ludwik. Ver. deu. Ing. Dec. 21, '29.

Neuzzeitliche Wasserstein-, Rost- und Korrosionsbekämpfung.\* (Modern Boiler Scale, Rust and Corrosion Prevention.) Hans Balcke. Gesund. Ing. Dec. 28, '29.

### f. Rock Excavation, Mining, Rock Removal

Abstracts of Institute Publications. Min. & Metal. Nov., '29.

### g. Execution of Works, Specifications

#### 2. Of Concrete

Concrete Blocks Under Eccentric Loading in Compression.\* R. W. Chapman. Comwlth. Engr. Nov., '29.

One-Way Concrete Slab Floors Widely Used in Northwest.\* George Runciman and H. L. Worthington. Eng. N. R. Jan. 9, '30.  
 Efficient Concrete Plants on Two Building Jobs.\* Zara Witkin. Eng. N. R. Jan. 16, '30.  
 4. Of Metal  
 Zwei Stahlselektbauten in Basel.\* (Two Steel Frame Buildings in Basel.) Schw. Bauz. Dec. 14, '29.

#### i. Cofferdams

Circular Cell Cofferdam on Deadman Island Dam.\* William H. Fowler. Eng. N. R. Jan. 9, '30.  
 La Valeur des Formules de Battage des Pleux en Béton Armé.\* (The Value of Driving Formulas for Reinforced Concrete Piles.) Henry Lossier. Gen. Civ. Dec. 28, '29.

#### k. Tunnels and Tunneling-Shields

Sepulveda Tunnel Under Mulholland Highway, Los Angeles.\* John C. Shaw. West Constr. N. Dec. 25, '29.  
 Value of Mechanical Ventilation in Tunnel Driving. Eng. N. R. Jan. 9, '30.  
 Strassenunterführung Glindenbergs unter dem Mittellandkanal.\* (Glindenbergs Street Underpass under the Mittelland Canal.) Schinkel and Tode. Z. d. Bauver. Dec. 18, '29.  
 Der Bau des Cascaden-Tunnels in Amerika.\* (The Construction of the Cascade Tunnel in America.) Halier. Z. d. Bauver. Dec. 25, '29.

#### x. Miscellaneous

Professor Terzaghi's Forschungen und deren Bedeutung für das gesamte Bauwesen.\* (Professor Terzaghi's Researches and Their Importance in All Construction Methods.) Oest. Ing. Arch. Ver. Nov. 8, '29.

### D. Highways

#### c. Construction

Cement Penetration in Geelong West, Victoria.\* Ian D. McDonald. Comwlth. Engr. Nov., '29.  
 Black Base and Track Paving at Charleston, S. C.\* J. H. Dingle. (Paper read before Asphalt Pav. Conference.) R. & S. Dec., '29.  
 Cooperative Research and Standardization of Low-Cost Road Improvement.\* H. S. Fairbank. (Paper read before Asphalt Pav. Conference.) R. & S. Dec., '29.  
 Bituminous Surfacing on Low Type Roads.\* J. S. Watkins. (Paper read before Asphalt Pav. Conference.) R. & S. Dec., '29.  
 Rough Texture Asphaltic Pavements in Europe. F. J. Leduc. (Paper read before Asphalt Pav. Conference.) R. & S. Dec., '29.  
 Retread Construction in Indiana.\* A. H. Hinkle. (Paper read before Asphalt Pav. Conference.) R. & S. Dec., '29.  
 The Asphaltic Treatment of Earth Road Surfaces.\* Chris. P. Jensen. (Paper read before Asphalt Pav. Conference.) R. & S. Dec., '29.  
 Types and Characteristics of Emulsions for Asphalt Paving Purposes. Lester Kirschbraun. (Paper read before Assoc. Asphalt Pav. Tech.) R. & S. Dec., '29.  
 Machine Finishing for Hot-Mixed Pavement in California. C. S. Pope. R. & S. Dec., '29.  
 Retread Surface Construction in Indiana. A. H. Hinkle. (Paper read before Asphalt Pav. Conference.) Can. Engr. Dec. 7, '29.  
 Easement and Banking of Highway Curves.\* N. B. Putnam. West. Constr. N. Dec. 10, '29.  
 Road Tar. H. C. Head. Inst. Mun. & Co. Engrs. Dec. 10, '29.  
 Junipero Serra Boulevard and Nineteenth Avenue Extension, San Francisco.\* West. Constr. N. Dec. 25, '29.  
 Water-Tamping of Fills in Texas Expedites Highway Work.\* A. J. Wise. Eng. N. R. Dec. 26, '29.  
 Machine Finishing Hot-Mixed Pavements. C. S. Pope. (Paper read before Asphalt Pav. Conference.) Can. Engr. Dec. 31, '29.  
 A Symposium on Current Road Progress: Trends in Planning and Construction.\* Eng. N. R. Jan. 2, '30.  
 Developments in Asphalt Pavements. Hugh W. Skidmore. (Paper read before Mich. Mun. League of Grand Rapids.) Can. Engr. Serial beginning Jan. 14, '30.

#### d. Maintenance

Oiled Roads in Nevada.\* West. Constr. N. Dec. 10, '29.  
 Maintenance of City Roads and Streets. C. E. Myers. (Paper read before Am. Road Bldrs. Assoc.) Can. Engr. Dec. 31, '29.

#### h. Vehicles, Automobiles, Traffic

The Model Municipal Traffic Ordinance. C. W. Stark. (Paper read before Safety Cong.) R. & S. Dec., '29.  
 The Vibrations of Roads and Structures.\* James Henry Hyde and Harry Reep Lintern. Inst. C. E. Vol. 227, 1928-29, Pt. 1.

### E. Bridges, Viaducts and Arches

#### b. Iron and Steel Bridges and Viaducts

The Regirdering of the Railway-Bridge over the Krishna River, Madras and Southern Mahratta Railway, India: Fourteen Spans of 150 Feet.\* Harold Nugent Colam, Inst. C. E. Vol. 227, 1928-29, Pt. 1.

50 Years in Steel Bridge Engineering.\* D. B. Steinman. (Paper read before Am. Inst. Steel Constr.) Eng. & Contr. Dec., '29.  
 The Forth Bridge. Ernest W. Moir. (Paper read before Junior Inst. Engrs.) Engr. Dec. 27, '29.  
 Procédé Rapide Pour le Remplacement de Ponts-Rails Métalliques.\* (Rapid Process for the Replacement of Metal Bridge Rails.) Jules Marteau. Gen. Civ. Dec. 28, '29.

**c. Stone Bridges and Viaducts**

The Widening of Highway Bridges.\* C. S. Chettoo. Inst. Mun. & Co. Engrs. Dec. 24, '29.

**d. Concrete and Reinforced Concrete Bridges and Viaducts**

George the Fifth Bridge, Glasgow.\* Thomas P. M. Somers. Inst. C. E. Vol. 227, 1928-29, Pt. 1.  
 Bosworth Street Bridge Over Bernal Cut, San Francisco.\* R. B. Rothschild. West. Constr. N. Dec. 10, '29.  
 Bridge at Bayview Heights, Toronto.\* H. A. Babcock. Can. Engr. Dec. 31, '29.  
 Plastic Flow in Concrete Arches.\* Lorenz G. Straub. Am. Soc. C. E. Jan., '30.

**f. Suspension Bridges, Transfer Bridges**

Bridging the Grand Canyon.\* Kit McKenzie. (From *American Forests and Forest Life*.) Sci. Am. Jan., '30.  
 Four Cables: 106,000 Miles of Wire.\* A. E. Cripps. Sci. Am. Jan., '30.  
 Transportation Problems Govern Suspension Bridge Design.\* Frank A. Kittridge. Eng. N. R. Jan. 9, '30.  
 St. Johns Bridge at Portland, Oregon.\* Melville E. Reed. West. Constr. N. Jan. 10, '30.  
 Die grosse Köln-Mülheimer Hängebrücke.\* (The Large Cologne-Mülheim Suspension Bridge.) Friedrich Hartmann. Oest. Ing. Arch. Ver. Dec. 6, '29.

**g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes**

Le Nouveau Pont Basculant de la Reine sur le Koningshaven, à Rotterdam.\* (The New Bascule Bridge, la Reine, over the Koningshaven, at Rotterdam.) Louis Dalton. Gen. Civ. Dec. 14, '29.

**h. Computations, Tests, etc.**

A Simplified Method for the Design of Single Span Frame Bridges.\* G. H. Hargreaves. Inst. Mun. & Co. Engrs. Dec. 24, '29.  
 Development Tests on a Light Floor for Bridges.\* Leon S. Moisesci. Eng. N. R. Jan. 9, '30.

**x. Miscellaneous**

Progress Review of Bridge Engineering. D. B. Steinman. Can. Engr. Dec. 31, '29.

**F. Inland Waters and Waterways**

**b. Canals (General Articles)**

The Nicaraguan Canal.\* Ernest Graves. Mil. Engr. Nov.-Dec., '29.  
 Welland Ship Canal Nearly Completed.\* Can. Engr. Dec. 17, '29.

**c. Regulation of Waterways, Volumes of Discharge, Freshets, Floods, Soundings**

Flood Control Work in the Memphis District.\* Public W. Dec., '29.  
 Silt Transportation by Sacramento and Colorado Rivers and by the Imperial Canal.\* Discussion: Harry F. Blaney. Am. Soc. C. E. Jan., '30.  
 Le Déversoir de Crues de Bonnet-Carré sur le Mississippi, près de la Nouvelle-Orléans.\* (The Diversion Weir of Bonnet Carré Spillway on the Mississippi near New Orleans.) P. Caufourier. Gen. Civ. Dec. 21, '29.  
 Regulation of Levels, Flow, and Navigation, Niagara River: Summary and Conclusions of Various Studies. Discussion: E. W. Lane. Am. Soc. C. E. Jan., '30.

**d. Diverting Dams, Locks, Lifts, Elevators, Inclined Planes**

Tests at the Bonnet Carré Spillway.\* S. J. Irvine. Mil. Engr. Nov.-Dec., '29.  
 The New Entrance Lock of the North Sea Canal to the Port of Amsterdam.\* Brysson Cunningham. Eng. Serial beginning Jan. 3, '30.

**k. Utilization of Inland Waterways, Freight, Capacity**

The Reconstruction of the New Holland Pier. John Hedley Nicholson. Inst. C. E. Vol. 227, 1928-29, Pt. 1.  
 The Upper River Terminal.\* Charles L. Hall. Mil. Engr. Nov.-Dec., '29.  
 More Equipment Required on Mississippi River.\* Victor J. Brown. Eng. & Contr. Dec., '29.

**G. Maritime Works**

**b. Management and Protection of Coasts, Beaches, Dunes**

Die Abschließung und Trockenlegung der Zuidersee.\* (Closing and Drying the Zuider Zee.) Schmidt. Z. d. Bauver. Dec. 4, '29.

**c. Vessels and Maritime Navigation, Lighthouses, Buoys, Various Signals**

The Propulsion of Ships by Modern Steam Machinery. J. Johnson. Eng. Inst. Can. Dec., '29.

**i. Harbors**

Der Erz- und Eisenkai im Emder Hafen.\* (The Ore and Iron Dock in Emde Harbor.) L. Schulze. Zeit. Bau. Serial beginning Nov., '29.

**H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics****1. General Articles**

On the Question of the Use of Concrete and Reinforced Concrete on Railways.\* Jullien and Claise. Int. Ry. Cong. Assoc. Oct., '29.

On the Question of Relations Between Railways and Sea Ports.\* C. M. Jenkins Jones. Int. Ry. Cong. Assoc. Oct., '29.

Some Engineering Problems of the South African Railways and Harbours.\* C. V. von Abo. (Paper read before British Assoc.) Eng. Dec. 13, '29.

**4. Track**

Mechanical Properties of British Rail-Steels.\* William Ernest Dalby. Inst. C. E. Vol. 227, 1928-29, Pt. 1.

The Gezira Irrigation Scheme: Canalization of the Gezira.\* Harmood V. C. Johnstone. Inst. C. E. Vol. 227, 1928-29, Pt. 1.

On the Question of the Resistance of Rails Against Breakage and To Wear.\* Cambournac and Patte. Int. Ry. Cong. Assoc. Oct., '29.

Special Trackwork Renewal in a Busy Terminal.\* W. L. Choate. Ry. Eng. & Main. Dec., '29.

Railway Cross Ties—Treated and Untreated. G. P. MacLaren. Eng. Inst. Can. Dec., '29.

A Billion Crossties.\* R. S. Belcher. (Abstract of paper read before Roadmasters' & Main.

of Way Assoc.) Ry. Eng. & Main. Dec., '29.

Three Roads Experiment with New Type of Track Construction.\* Ry. Age Jan. 11, '30.

Great Northern Treats Ties in Modern Plant.\* Ry. Age Jan. 18, '30.

**5. Signals and Safety Apparatus**

Trains Operate by Signal Indication on the Paducah & Illinois.\* J. H. Schubert. Ry. Age Jan. 11, '30.

**6. Rolling Stock, Fuel**

On the Question of the Improvements in the Steam Locomotive.\* W. L. Lentz. Int. Ry. Cong. Assoc. Oct., '29.

On the Question of Rail Motor Vehicles.\* Paul Beghin. Int. Ry. Cong. Assoc. Oct., '29.

On the Question of Rail Motor Vehicles.\* C. E. Brooks and R. G. Gage. Int. Ry. Cong. Assoc. Oct., '29.

Concrete Water Tanks Give Excellent Service.\* R. A. Tanner. Ry. Eng. & Main. Dec., '29.

Distribution par Soupapes Système Renaud en Essai sur une Locomotive Mikado à Simple Expansion et à Surchauffe des Chemins de Fer de l'Etat.\* (Renaud Valve Gear Tested on a Simple Expansion Superheated Steam Mikado Locomotive of the State Railways.) Nasse. Rev. Gen. Dec., '29.

Les Locomotives Électriques à Grande Vitesse de la Compagnie P.-L.-M.\* (Electric Express Locomotives of the P.-L.-M. Company.) Marcel Japiot. Rev. Gen. Dec., '29.

Note sur le Chauffage par la Vapeur des Longs Trains et sur un Nouveau Demi-Accouplement de Chauffage.\* (Note on the Steam-Heating of Long Trains and on a New Semi-Coupling for Heating.) Reure. Rev. Gen. Dec., '29.

**7. Uses of Electricity**

Electrification on the Great Northern.\* Edward L. Moreland. Mil. Engr. Nov.-Dec., '29.

Locomotives Électriques à Crémallière et à adhérence du Chemin de Fer Transandin.\* (Electric Rack and Adhesion Locomotives of the Transandes Railway.) Gen. Civ. Nov. 30, '29.

**8. Stations, Terminals, Engine Houses, Shops**

Der neue Rangierbahnhof Basel S. B. B. auf dem Muttenzerfeld.\* (The New Basel Switching Yard of the S. B. B. on the Muttenzerfeld.) Schw. Bauz. Serial beginning Dec. 21, '29.

Railroads Build Modern Produce Terminal at Detroit.\* J. Wm. Moffett. Ry. Age Dec. 28, '29.

Purchasing and Stores Methods on European Railroads.\* Norman F. Harriman. Ry. Age Jan. 18, '30.

Wireless Engine Terminal on The Great Northern.\* Ry. Age Jan. 18, '30.

**10. Accidents**

Les Déraillements en Pleine Voie.\* (Derailments on Standard Gage Track.) A. Joitel. Gen. Civ. Serial beginning Dec. 7, '29.

Unebenheiten des Gleises als Entgleisungsursache.\* (Track Irregularities as a Cause of Derailment.) H. Saller, Z. d. Bauver. Dec. 25, '29.

**b. Special Railroads****3. Narrow Gauge, Light Railways**

On the Question of the Improvements in the Permanent Way Equipment of Light Railways.\* Ed. Van Noorbeeck. Int. Ry. Cong. Assoc. Oct., '29.

**c. Ferry Boats**

Bridging San Francisco Bay.\* Ry. Age Jan. 18, '30.

**d. Street Railway, Elevated Railways, Subways****1. General Articles**

Zwei Umformerwerke der Hoch- und Untergrundbahn Berlin.\* (Two Substations of the Berlin Elevated and Subway.) Z. d. Bauver. Dec. 18, '29.

**e. Automobiles****x. Miscellaneous**

Le XXIII Salon de L'Automobile. Troisième Serie: Véhicules Industriels (Paris 14-24 Novembre 1929).\* (The 23rd Automobile Salon. Third Series: Industrial Vehicles. Paris, 14-24 November 1929.) G. Delanghe. Gen. Civ. Dec. 21, '29.

**f. Aeronautics****2. Dirigible Balloons**

The Metalclad Airship.\* Carl B. Fritsche. Mech. Eng. Dec., '29.

**3. Aeroplanes**

Factors in the Design of Commercial Airplanes. Charles Talbot Porter. *Mech. Eng.* Dec., '29. The Airplane Diesel in 1940.\* Roswell H. Ward. *Sci. Am.* Jan., '30.

**4. Aerodromes and Landing Fields**

Oiled Runways for Airports. John A. Herlihy. (Paper read before Asphalt Pav. Conference.) *R. & S. Dec.*, '29.

Electric Equipment for Operating Doors of Goodyear-Zeppelin Airship Dock.\* W. C. Raube. *Eng. N. R.* Dec. 26, '29.

Factors Governing the Location of Airports.\* Discussion: Stephen Child and Morris Knowles. *Am. Soc. C. E.* Jan., '30.

Airport Competition Reveals Many Innovations.\* *Eng. N. R.* Jan. 9, '30.

Progress on the Air-Rail Station at Columbus, Ohio.\* *Eng. N. R.* Jan. 9, '30.

The Goodyear Zeppelin Airship Shed at Akron, Ohio.\* *Engr. Jan.* 10, '30.

**I. Municipal Water-Works. Agricultural Engineering. Irrigation****a. General Articles**

A State Division of Hydraulics and Municipal Water Supplies. R. K. Tiffany. *Am. W. W. Assoc.* Nov., '29.

New Water Supply for Everett, Washington.\* J. W. Cunningham. *Dec. 10, '29.*

Water Supply System at Kapuskasing.\* T. M. Barry. *Can. Engr. Dec. 24, '29.*

The Toronto Water Works System. R. C. Harris. *Am. W. W. Assoc. Dec. 29, '29.*

Der Entwurf für das neue Wasserwerk der Stadt Tiflis.\* (The Design of the New Water Works for the City of Tiflis.) H. Eigenbrodt. *Gesund. Ing. Dec. 21, '29.*

**b. Hydrology, Water Resources**

Sources of Water Supply in Southern California. A. L. Sonderegger. (Paper read before Univ. of So. Calif.) *W. W. & Sewer.* Dec., '29.

Rainfall Characteristics and Their Relation to Soils and Run-Off.\* C. S. Jarvis. *Am. Soc. C. E.* Jan., '30.

Water Supply from Rainfall on Valley Floors.\* Discussion: Ivan E. Houk. *Am. Soc. C. E.* Jan., '30.

Missouri River Bridge, Montana.\* M. S. Hopkins. *West. Constr.* N. Jan. 10, '30.

Die Talsperren-Wasserversorgung von Mittelsachsen.\* (The Dammed Water Supply of Central Saxony.) Vollmar. *Gas und Wasser.* Nov. 23, '29.

Versuche über den Einfluss der Grundluft auf das Entstehen von Grundwasser.\* (Experiments on the Effect of Ground Air on the Formation of Ground Water.) Chr. Mezger. *Gesund. Ing. Serial beginning Nov. 30, '29.*

Der Wert einer Quelle für Wasserversorgungszwecke.\* (The Value of a Spring for Water Supply Purposes.) G. J. Lehr. *Gesund. Ing. Dec. 14, '29.*

Die Entwicklung der Hydrologie als wissenschaftliche Grundlage des Wasserbaues.\* (The Development of Hydrology as a Scientific Basis in Hydraulic Construction.) F. Schaf-fernak. *Oest. Ing. Arch. Ver.* Dec. 20, '29.

**c. Dams and Reservoirs**

Echo Dam, Weber River, Utah.\* *West. Constr.* N. Dec. 10, '29.

Shunt System of Operating Filtered-Water Reservoirs.\* Eugene A. Hardin. *Eng. N. R.* Dec. 26, '29.

Design and Construction of Big Dalton Multiple-Arch Dam.\* E. C. Eaton. *Eng. N. R.* Dec. 26, '29.

Spillway Discharge Capacity of Wilson Dam. Discussion: Cecil E. Pearce. *Am. Soc. C. E.* Jan., '30.

Essential Facts Concerning the Failure of the St. Francis Dam.\* (Report of Comm. of Board of Direction.) Discussion: Edward Godfrey, C. A. P. Turner, and Lars R. Jorgensen. *Am. Soc. C. E.* Jan., '30.

High Dams.\* A Symposium. Discussion: F. G. Switzer. *Am. Soc. C. E.* Jan., '30.

**d. Analysis and Purification of Water**

A Practical Method of Cleaning Filter Sand. Emil K. Ventre. *Am. W. W. Assoc.* Nov., '29.

The Ohio Conference on Water Purification. F. H. Waring. *Am. W. W. Assoc.* Nov., '29.

Studies on the Washing of Rapid Filters. Roberts Hulbert and Frank W. Herring. *Am. W. W. Assoc.* Nov., '29.

Mechanical Developments in Water Treatment Practice.\* C. T. Leander. *Am. W. W. Assoc.* Dec., '29.

Water-Borne Disease Epidemics on Ships.\* Isador W. Mendelsohn and Others. *Am. W. W. Assoc.* Dec., '29.

The Kansas City, Kansas, Filtration Plant. C. A. Haskins. *Am. W. W. Assoc.* Dec., '29.

The Prevention of Chloro-Phenol Tastes in New York State. Charles R. Cox. *Am. W. W. Assoc.* Dec., '29.

Chloramines in the Disinfection of Water.\* Jack J. Hinman, Jr. and Kenneth C. Beeson. *Am. W. W. Assoc.* Dec., '29.

The New Toronto Filtration Plant and Other Extensions.\* William Gore. *Am. W. W. Assoc.* Dec., '29.

Filtering Materials for Water and Sewage Works. (Progress Report of the Comm. of San. Eng. Div.) Discussion: Willem Rudolfs and J. A. Childs. *Am. Soc. C. E.* Jan., '30.

Chemische und bakteriologische Abwasseruntersuchungen.\* (Chemical and Bacteriological Sewage Investigations.) Karl L. Pesch. *Gesund. Ing.* Dec. 14, '29.

Die Bedeutung des Ammonchlorid-Zitratagar für die Erkennung von Colibakterien aus Wasser und Abwasser.\* (The Importance of Ammonium Chloride Citrate Agar in Recognizing Coli Bacteria in Water and Sewage.) Karl L. Pesch. *Gesund. Ing.* Dec. 28, '29.

**e. Distribution of Water**

Sluices and Machinery of the Gezira Irrigation Scheme; Blue Nile Dam and Canalization. James Robertson Russell. Inst. C. E. Vol. 227, 1928-29, Pt. 1.  
 Long Distance Transportation of Water. E. A. Bayley. (Paper read before Univ. of So. Calif.) W. W. & Sewer. Nov., '29.  
 The Durability of Distribution Systems.\* Harry Y. Carson. Am. W. W. Assoc. Dec., '29.  
 Experiments to Determine Rate of Evaporation from Saturated Soils and River-Bed Sands.\* Discussion: Carl Rohwer. Am. Soc. C. E. Jan., '30.  
 Use of Water on Federal Irrigation Projects. Discussion: Ralph L. Parshall and E. B. Debler. Am. Soc. C. E. Jan., '30.  
 Irrigation Works Construction in Mexico.\* R. M. Conner and Andrew Weiss. Eng. N. R. Jan. 16, '30.

**f. Drainage of Land**

Ueber die Bestimmung der Regenwassermengen für die Berechnung von Durchlassöffnungen.\* (On the Determination of the Amount of Rain Water for the Calculation of Culvert Cross Sections.) Alfred Vitols. Zeit. Bau. Oct., '29.  
 Zur Aufklärung über den Einfluss des Waldes auf den Wasserabfluss bei Landregen.\* (On the Explanation of the Effect of the Forest on Run-Off in Rains.) Hans Burger. Schw. Bauz. Nov. 16, '29.

**J. Sewerage, Sewage and Refuse Disposal****a. Sewers and Drains**

Methods and Costs of Day Labor Construction of Water Mains and Sewers. H. Roland Devilbiss. (Paper read before Maryland Water & Sew. Assoc.) W. W. & Sewer. Nov., '29.  
 Floating Concrete Pipes Into Place.\* Ry. Eng. & Main. Dec., '29.

**b. Sewage Disposal, Purification**

How to Keep Sewage Filters in Operating Order.\* C. H. Currie. (Paper read before Iowa Sewage Treatment Conference.) W. W. & Sewer. Nov., '29; Can. Engr. Dec. 24, '29.  
 Refuse Disposal at Sacramento. Public W. Dec., '29.  
 Sanitary Aspects of the Lake Michigan Diversion Case at Chicago.\* L. R. Howson. Public W. Dec., '29.  
 Sludge Disposal at Marion, Ohio.\* Floyd G. Browne. Public W. Dec., '29.  
 Records and Tests for Sewage Treatment Plants.\* Herbert Bosch. (Paper read before Missouri Water & Sewage Conference.) W. W. & Sewer. Dec., '29.  
 Sewage Disposal at Amarillo, Texas.\* Wynkoop Klersted. W. W. & Sewer. Dec., '29.  
 Separate Sludge Digestion.\* Chester A. Smith. (Paper read before Ariz. Pub. Health Assoc.) West. Constr. N. Dec. 10, '29.  
 Proposed Activated-Sludge Plant for New York City.\* Eng. N. R. Dec. 26, '29.  
 Operation of Activated Sludge Plants. A. S. M. Parsons. (Paper read before Royal San. Inst.) Can. Engr. Jan. 14, '30.  
 Pulverizing of Sewage Screenings at Baltimore, Maryland. Discussion: Willem Rudolfs and H. K. Palmer. Am. Soc. C. E. Jan., '30.  
 Entstehung, Betrieb und Wirtschaftlichkeit der neuen Klärteichanlage auf dem Truppen-Übungsplatz Grafenwöhrl (Obpf.).\* (Design, Operation and Efficiency of the New Clarification Pond on the Grafenwöhrl Drill Field, Obpf.) Wilhelm Huber. Gesund. Ing. Serial beginning Dec. 21, '29.

**c. Refuse Disposal**

Garbage and Refuse Collection and Disposal in Austria, Germany, France and Italy.\* C. M. Morssen. Eng. N. R. Jan. 16, '30.  
 Müllbeseitigung und öffentliche Hygiene.\* (Refuse Disposal and Public Hygiene.) Gesund. Ing. Dec. 21, '29.)

**L. Electricity****a. Production of Electricity****2. Long Distance Transmission of Energy**

La Nouvelle Installation à 100 Atmosphères de la Central de Mannheim (Allemagne).\* (The New 100-Atm. Installation at the Mannheim Central Station (Germany).) Gen. Civ. Dec. 28, '29.

**b. Distribution and Transmission of Electricity**

The Central Scotland Electricity Scheme.\* Engr. Dec. 13, '29.  
 1. Power Plants  
 The Future of Higher Steam Pressures in Steam Electric Generating Stations. Irving E. Moulthrop. A. I. E. E. Dec., '29.

**d. Mechanical Uses of Electricity****3. Welding**

The Use of Welding in Engineering Construction.\* Eng. Dec. 13, '29.

**M. Architecture****a. Educational, Government and Scientific Buildings**

Polizeibauten.\* (Police Buildings.) Dammeler. Zeit. Bau. Nov., '29.  
 Reichsdankhaus Schneidemühl.\* (Schnedemühl Reichs Memorial Building.) Z. d. Bauver. Dec. 11, '29.

**c. Residences, Hotels**

Les Applications de la Normalisation dans la Construction des Habitation à Bon Marché. (The Applications of Standardization in the Construction of Cheap Dwellings.) Paul Razous. Gen. Civ. Serial beginning Nov. 30, '29.

Die Eigenwohnung im Zweifamilienhaus als Beispiel für die Anwendung des Wohnbauförderungsgesetzes.\* (The Single Dwelling in the Two-Family House as an Example of the Application of the Law for Promoting Dwelling Construction.) Hans Glas. Oest. Ing. Arch. Ver. Nov. 8, '29.

Die Siedlung Karlsruhe-Dammerstock.\* (The Karlsruhe-Dammerstock Community.) Schw. Bauz. Nov. 30, '29.

Einreihen-, Mittigreihen- oder Doppelreihenbau.\* (Single Row, Center or Double Row Street Planning.) Paul Schmitt. Gesund. Ing. Dec. 28, '29.

**d. Storage Buildings**

Technik im Warenhaus. Der neue Karstadtgebäude in Berlin-Neukölln.\* (Engineering in the Warehouse. The New Karstadt Building in Berlin-Neukölln.) Ernst Neuberg. Ver. deu. Ing. Nov. 30, '29.

**g. Other Buildings**

Acoustic Correction of Auditoriums.\* F. R. Watson. Eng. N. R. Jan. 16, '30.

**h. Roofs, Domes, Steel Framing**

Continuous Shoring Speeds Work on Tall Chicago Structure.\* C. W. Ellsworth and H. S. Keller. Conc. Dec., '29.

Steep Concrete Roof Slab Constructed of Gunite.\* E. R. Huber. West. Constr. N. Dec. 25, '29.

Steel Frames for Houses.\* T. J. Foster. Eng. N. R. Serial beginning Jan. 16, '30.

**O. Administration. Legislation. Economics. Statistics****b. Economic Questions of a General Character, Valuations**

Charges and Method of Making Charges for Professional Services. (Report of Special Comm.) Discussion: S. Bent Russell and Wilson T. Ballard. Am. Soc. C. E. Jan., '30.

**d. Administrative and Financial Management of Means of Communication****2. Routes and Roads**

Financing State and Interstate Highways.\* A. J. Brosseau. Eng. N. R. Jan. 2, '30.

Gasoline Taxes Theory, Practice and Hazards.\* Edmund P. Learned. Eng. N. R. Jan. 2, '30.

Highway Financing by Special Assessment.\* John E. Brindley. Eng. N. R. Jan. 2, '30.

County and Township Financing. Samuel Eckels. Eng. N. R. Jan. 2, '30.

How Highway Financing Has Evolved.\* Thomas H. MacDonald. Eng. N. R. Jan. 2, '30.

**5. Railroads and Street Railways**

Purchases and Stores Methods of European Railroads.\* N. F. Harriman. Ry. Age Dec. 28, '29.

**g. Engineering Education**

Engineers in American Life.\* L. W. Wallace. Mech. Eng. Dec., '29.

**Q. Surveying and Geodesy**

The Economic Application of Aerial Surveys.\* J. F. Bagley, Jr. Bost. Soc. C. E. Nov., '29.

Adjustment of Transit and Stadia Traverses. Discussion: Lowell O. Stewart. Am. Soc. C. E. Jan., '30.

**S. City Planning**

Development of a Community.\* S. G. Whittelsey. West. Constr. N. Dec. 10, '29.

The Arrangements and Economics of a Town Plan.\* B. Price Davies. Inst. Mun. & Co. Engrs. Dec. 10, '29.

The Inter-Relation of Public Services and Town Planning.\* Jocelyn F. Abram. Inst. Mun. & Co. Engrs. Dec. 10, '29.

General Zoning Principles. H. H. Jaqueth. (From paper read before League of Calif. Municipalities in Oakland.) West. Constr. N. Dec. 25, '29.

Städtebau und Landesplanung in Ihrem Zusammenhang mit Wirtschaft und Kultur.\* (City Building and Regional Planning and Their Relation to National Economy and Culture.) Ph. A. Rappaport. Zeit. Bau. Oct., '29.

Neuere Städtebauarbeit der Stadt Kiel.\* (Recent Municipal Construction in Kiel.) Hahn. Zeit. Bau. Dec., '29.

Stadtgestaltung Essen.\* (Essen City Planning.) Ph. A. Rappaport. Z. d. Bauver. Dec. 4, '29.

Die Landerplanungsgebiets in Deutschland.\* (The Regional Planning Subjects in Germany.) H. Delius. Tech. Gemein. Dec. 5, '29.

Städtebau und Wohnungsbau in Rom.\* (City Building and House Building in Rome.) Gustav Lampmann. Z. d. Bauver. Dec. 25, '29.

## Engineering Societies Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

*Offices.*—Eastern Office, 31 West 39th Street, New York, N. Y., Walter V. Brown, Manager; Chicago Office, 205 West Wacker Drive, 1216 Engineering Building, Chicago, Ill., A. Krauser, Manager; and San Francisco Office, 57 Post Street, Room 715, San Francisco, Calif., Newton D. Cook, Manager.

*Men Available.*—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Notices for *Proceedings* should be addressed to Employment Service, 31 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

*Opportunities.*—A Bulletin of engineering positions available is published weekly and may be obtained by members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

*Placement Fees.*—The Service is operated on a co-operative basis, whereby those benefiting contribute in accordance with the following rates: One and one-half per cent. of the first year's salary for permanent positions. Temporary positions, six months or less, 3% of the total salary received, payable monthly.

*Replies to Announcements.*—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with two two-cent stamps attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Service after the positions to which they refer have been filled, will not be forwarded.

### MEN AVAILABLE

**MUNICIPAL AND SANITARY ENGINEER,** Assoc. M. Am. Soc. C. E.; graduate civil engineer; married. Sixteen years' general experience in office and in field on design and construction of sewerage systems, sewage treatment works, water supply systems, and other related works. Available on reasonable notice. A-466.

**ENGINEER, PROFESSOR,** Assoc. M. Am. Soc. C. E.; A. B. in Civil Engineering, 1917; A. M. in Mathematics, 1925; age 39; married. Two years, 1st Lieut., Engineers, during World War; six years' structural engineering and construction; two years, teaching mathematics, surveying, and drawing in Western college. Desires similar permanent position with Eastern college. Home in the East. A-4752.

**SUPERINTENDENT,** M. Am. Soc. C. E. Construction of large industrial plants, public works, tunnels, office buildings, theatres, bridges, etc. Thirty years' experience in Middle West in full charge of design, estimates, and construction. B-31.

**GRADUATE CIVIL ENGINEER,** Assoc. M. Am. Soc. C. E.; age 54; married. Twenty-four years in engineering charge of work; twenty years with same interests on railway, harbor, and drainage projects; four years, municipal engineering. Desires position as executive, division engineer, or manager on municipal, railroad, highway, or drainage project, east of Mississippi River. B-7029.

**CONSTRUCTION ENGINEER,** M. Am. Soc. C. E.; technical education; executive ability, with twenty-four years' experience

on heavy construction work. Reinforced concrete structures, dams, bridges, rivers, and harbors, flood control, dikes, jetties, bulkheads, etc. Working knowledge of Spanish and will go anywhere. Employed, but wishes new connection. B-7444.

UNIVERSITY INSTRUCTOR, Assoc. M. Am. Soc. C. E. Nine years' practical experience; advanced degree in sanitary engineering; desires two months summer position in sanitary engineering. Available June 10. B-7785.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 39. Twelve years' experience, location, construction, highways, including preparation of plans, estimates, reports; seven years, railroads, municipal, surveys, etc.; now in responsible charge, highway development in a foreign country, returns to the States in March. Reciprocal registration. B-7839.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; graduate, Mass. Inst. Tech.; post-graduate, Univ. of Minnesota; age 36; single. Professional record from 1912. Broad general engineering experience, particularly investigation, promotion. Railroads, sanitation, buildings, tunnels, oil fields. Speaks French, Spanish, other languages. Desires connection, consulting, contracting, or financial firm to undertake investigations, reports, estimates, design. Location, States or abroad. B-8014.

CIVIL ENGINEER, M. Am. Soc. C. E.; civil engineering graduate; age 50; married. Twenty-five years' varied experience as engineer and superintendent of construction on tunnels, irrigation, highways, etc. Now employed as construction superintendent on tunnel 4 miles long. Available for other work soon. Location immaterial. Position in foreign country acceptable. C-2773.

CIVIL ENGINEER, M. Am. Soc. C. E.; age 48; married. Fifteen years' experience in responsible charge of work in the United States, Mexico, Central and South America, speaks Spanish fluently and some Portuguese. Railway, highway surveys, and construction; also tunnels, bridges, and mining operations. C-4267.

CIVIL AND SANITARY ENGINEER, Assoc. M. Am. Soc. C. E.; university graduate; age 32. Ten years' active experience in design and construction of water supply and sewage treatment works and other municipal engineering works. Desires position with consulting engineer, contractor, or municipality. C-4899.

ENGINEER, PROFESSOR, -M. Am. Soc. C. E.; B. S. (general engineering); M. S. (hydraulics, sanitary engineering); age 28; married. One year, general engineering experience (field, office); one year, Principal, High School; two years, head, engineering drawing; descriptive geometry, surveying (one year included mechanics). Desires similar position, university or growing technical college, with opportunity for research work. C-5726.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E., with 10 years' broad experience in concrete, steel, and hydraulics; industrial plants, hangars, airship halls, bridges, theatres, churches, and hydroelectric developments; design, estimate,

specifications, and construction; good organizer; desires responsible position, preferably abroad, Europe or South America. Languages: English, French, German, Spanish, Portuguese. C-5774.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 34; Licensed, New York State. Ten years' experience in architectural, structural engineering, and general construction of steel and reinforced concrete (office buildings and theatres). Also layouts and job supervision. Now employed. Desires responsible position with contracting company or industrial corporation or architectural concern. C-6335.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; A. B.; B. S. in C. E.; age 29; married; structural steel detailer, one summer; three years' experience, present firm, in drafting, estimating, surveying, and some design. Structures include armory, banks, bridges, churches, factories, office buildings, schools, warehouses, and cold storage plant. Desires position either near or in New York City. C-6554.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; recent graduate; age 21. Six months' experience on topographic surveys. Desires position preferably with a firm to learn the business or process of manufacture. Available immediately. Location, United States or Canada. C-6868.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; university graduate; age 32; married; 1 year's experience on river bank protection work; 2 years' experience, Chicago railway terminal construction, including track layouts, viaducts, sewers, and pavements; 4 years' experience in charge of highway and bridge construction, including timber, steel, and concrete structures, also maintenance supervision. C-6873.

STRUCTURAL ENGINEER, Jun. Am. Soc. C. E.; civil engineering graduate. Two years' construction experience, hydro-electric and subway work. Five years' experience, design, estimates, and specifications for industrial buildings, schools, garages, power-houses, transmission towers. At present, in charge, design, all structural work in connection with large steam power plant. Desires permanent position with future possibilities. C-6886.

ENGINEER, Jun. Am. Soc. C. E.; B. S. and M. S. degrees, civil engineering; age 26; married. Now employed in West as assistant professor of civil engineering. Experience, building construction; design, highway bridges; road and building materials testing; inspection; research. Good record. Desires permanent connection with opportunity, interested in work with consulting engineer. Available in June. C-6888.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E., with varied, comprehensive experience, in irrigation, reclamation, highway, farm survey work, etc. Six years, responsible charge of, and detail work in, industrial plant building layout, design, construction, layout, and installation machinery, transmission, conveying, power-plant equipment. Desires responsible position pertaining to the above qualifications. C-6910.

**CIVIL ENGINEER**, Assoc. M. Am. Soc. C. E.; graduate, 1918; age 37; single. Twelve years' experience, design, construction, nine years in Latin-America. Last four years, chief engineering office, Latin-American Republic, in responsible charge, design, administration, construction, bridges, buildings, docks, etc., general engineering advice and aid. Desires position, technical or administrative, with engineering-contracting, commercial or financial concern, America or abroad. C-6929.

**CONSTRUCTION ENGINEER**, Assoc. M. Am. Soc. C. E.; graduate civil engineer; age 31; married; experience both theoretical and practical. Past seven years with large contracting organizations; engineering and building construction work. General superintendent and manager. Designer and buyer. Available at once. C-6930.

**GRADUATE CIVIL ENGINEER**, 1923, wishes to enter negotiations with engineering firm or allied industry where training will be an asset. Miscellaneous experience, railroad construction, irrigation, public utility appraisals, sales promotion. Foundation being broad rather than specialized will make for adaptability. At present in New York, but location immaterial. C-6934.

**CIVIL ENGINEER**, Jun. Am. Soc. C. E.; graduate, 1929; age 29; married; at present employed in highway work; desires position with structural engineering firm located in New York City. Has broad education. Very conscientious worker. C-6944.

**REINFORCED CONCRETE DESIGNER**, M. Am. Soc. C. E.; age 26; married. Four years' experience detailing, checking, estimating, and designing reinforced concrete buildings, including two and four-way flat slabs. Desires position with structural engineer, general contractor, or bar company. Must be good opportunity. Location preferred, South, but will go anywhere. Excellent references. C-6945.

**CONTRACTOR'S ENGINEER**, Assoc. M. Am. Soc. C. E.; age 34; desires connection with contracting firm. Four years', structural steel design, erection. One year, highway bridge construction. Six years', general contracting experience, large office, industrial buildings, apartments. Thoroughly familiar with construction costs, estimating, handling sub-contracts, purchasing materials. Executive ability; knowledge of financing. Vicinity, New York, or foreign, preferred. Two years' foreign experience. C-6973.

## Membership

(From January 8 to February 4, 1930)

### Additions

MEMBERS	Date of Membership.
ADAMS, Francis Lee. With Stone & Webster Eng. Corporation, Boston (Res., 27 Boylston St., Jamaica Plain, Mass.).....	Jun. Oct. 14, 1929
ARLT, Arthur Williamson. 737 Woodville St., Toledo, Ohio.....	Jun. Nov. 11, 1929
BEATTY, John Matthew. 33 Belle Ave., Troy, N. Y.....	Jun. Jan. 13, 1930
BERGMAN, Elmer Otto. Asst. Prof., Civ. Eng., Univ. of Colorado (Res., 841 Ninth St.), Boulder, Colo.....	Assoc. M. Oct. 14, 1929
BOLIEAU, Clifton Williams. Designer, Malcolm Pirnie, 25 West 43d St., New York, N. Y.....	Jun. Jan. 13, 1930
BRADLEY, Joseph Newell. Junior Engr., Interstate Commerce Comm., 710 Nineteenth St. N. W., Washington, D. C.....	Jun. Jan. 13, 1930
BREMNER, William Carnegie. 922 North St. Johns Ave., Highland Park, Ill.....	Jun. Dec. 16, 1929
BRENNAN, Joseph Charles. 562 Argyle Ave., Orange, N. J.....	Jun. Oct. 14, 1929
BUCKLEY, James Flanders. 503 Elm St., Ann Arbor, Mich.....	Jun. Dec. 16, 1929
BURTON, Walter Edgar. Junior Plant Insp., Div. of Tests, Tennessee Highway Dept., Rydal, Ga.....	Jun. Jan. 13, 1930
CARR, Robert Picket. Technical Asst. to Chf. Engr., Elec. Bond & Share Co., Casilla 1557, Santiago, Chile.....	Assoc. M. Nov. 11, 1929
CASE, Egbert DeForest. Gen. Mgr., The Pitometer Co., 50 Church St., New York, N. Y.....	Assoc. M. July 11, 1921
CONRATH, Joseph George. Supt. of Constr., H. J. Conrath Co., 4603 Cherry St., Erie, Pa.....	M. Jan. 13, 1930
COVAS, Perfecto Antonio. Computer, Div. of Design and Constr., City of Rochester, 230 City Hall Annex (Res., 41 Pierpont St.), Rochester, N. Y.....	Jun. Oct. 14, 1929
COWLES, Robert Fulton. 411 North Nevada St., Apartment 1, Oceanside, Calif.....	Jun. Jan. 13, 1930
CRAUSMAN, Morris Arthur. 2284 Grand Ave., New York, N. Y.....	M. Aug. 26, 1929
DEAN, Harold Reynolds. Cons. Engr., 234 Main St. (Res., 8 Randolph Ave.), Poughkeepsie, N. Y.....	Assoc. M. Mar. 7, 1921
DITTMAR, Albert Louis. Asst. Engr., State Dept. of Highways, North Office Bldg. (Res., 700 North 6th St.), Harrisburg, Pa.....	M. Jan. 13, 1930
DONALDSON, Wellington. San. Engr., Fuller & McClinton, 170 Broadway, New York, N. Y.....	Assoc. M. Feb. 25, 1924
DORSEY, Joseph Richard. Engr., The Bartlett Hayward Co., Scott and McHenry Sts. (Res., 3012 Beverly Rd.), Baltimore, Md.....	M. Jan. 13, 1930
DOST, William August. Field Engr., The Empire Constr. & Eng. Co., Greenbrier Rd., Towson, Md.....	Jun. Jan. 13, 1930
DRYFOOSE, Earl Daniel. Road Engr., State Highway Div. (Res., 850 South State St.), Springfield, Ill.....	Assoc. M. May 19, 1924
DUNCAN, Charles Freeman. Ellaville, Ga.....	M. Jan. 13, 1930
EARLY, Junius Campbell. Asst. Engr., Tex. & Pac. R. R. (Res., 2528 South Boulevard), Dallas, Tex.....	Jun. Jan. 13, 1930
EDWARDS, Charles Eugene, Jr. Treas. and Member, Board of Directors, Francis R. Weller, Inc. (Res., 1229 Jefferson St. N. W.), Washington, D. C.....	Assoc. M. Jan. 13, 1930
EGBERT, Donald Carlyle. Bldg. Insp., Village of Birmingham, Municipal Bldg., Birmingham, Mich.....	M. Jan. 13, 1930
ENDRESS, Stephen Gardner. Draftsman, Hawley & Freese, 417 Capps Bldg., Fort Worth, Tex.....	Jun. Jan. 13, 1930
ERVAST, Frederick William. Instr., Civ. Eng., Oregon State Agri. Coll. (Res., 236 North 15th St.), Corvallis, Ore.....	Jun. Dec. 16, 1929
EVANS, John Powell. Room 410 B, Central Y. M. C. A., Arch St., Philadelphia, Pa.....	Jun. Oct. 14, 1929
FLYNN, John Kelly. Instr., Civ. Eng., Rensselaer Polytechnic Inst. (Res., 171 Pawling Ave.), Troy, N. Y.....	Jun. Jan. 13, 1930
FRIEND, Gilbert Haven. Mgr., The Silica Tile Co., 204 Southern Bldg., Washington, D. C.....	M. Jan. 13, 1930
FRUECHTENICHT, Herman Louis, Jr. Insp., U. S. Engr. Dept., Memphis Dist., 513 Solomon Bldg., Helena, Ark.....	Jun. Jan. 13, 1930
GATLEY, Harold Kent. Designing Engr., Fuller & McClinton, 170 Broadway, New York, N. Y. (Res., 257 Ward Pl., South Orange, N. J.).....	Assoc. M. April 18, 1927
GILL, Warren Easterbrook. 9 Indian Valley Crescent, Toronto, Ont., Canada.....	M. Jan. 13, 1930
GILMAN, George Thomas. Asst. Engr., Moran & Proctor, 342 Madison Ave., New York (Res., 59 Burling Ave., Flushing), N. Y.....	Assoc. M. July 15, 1930
	Assoc. M. May 13, 1929

## MEMBERS—(Continued)

		Date of Membership.
GORDON, Samuel. Senior Asst. Engr., North Jersey Dist. Water Supply Comm., 24 Commerce St., Newark, N. J. ....	Jun.	Oct. 4, 1910
GRAF, John Alfred. Draftsman, Elec. Bond & Share Co. (Res., 140 Claremont Ave.), New York, N. Y. ....	Assoc. M.	Aug. 31, 1915
GREENE, Hubert Wilson. Instrumentman, State Highway Dept., Box 65, Kingston, Tenn. ....	M.	Jan. 13, 1930
GRENATA, Michael Charles. Lieut., Corps of Engrs., U. S. A.; Instr., Engrs., National Guards of Mississippi and Florida, 925 Belhaven St., Jackson, Miss. ....	Assoc. M.	Dec. 16, 1929
GUERIN, George Vincent, Jr. Asst. Bridge Engr., G. N. Ry., Rail-way Bldg. (Res., 126 South Victoria St.), St. Paul, Minn. ....	Jun.	Dec. 16, 1929
HAMILTON, Samuel Clinton. 10629 Hale Ave., Chicago, Ill. ....	Jun.	Mar. 9, 1920
HARPUR, Charles. Commr. of Public Works, Administration Bldg., Shanghai, China. ....	Assoc. M.	Oct. 14, 1929
HASBROUCK, Ralph Josiah. 655 East 26th St., Paterson, N. J. ....	M.	Nov. 11, 1929
HOLBROOK, Arthur Raymond. Designing Engr., Fuller & McClinton, 170 Broadway, New York, N. Y. ....	Jun.	Jan. 13, 1930
HOLMSTROM, Andrew Birger. Civ. Engr., Norton Co., Barbers Crossing (Res., 48 Marsh Ave.), Worcester, Mass. ....	Jun.	April 2, 1907
HOMEYER, Max Paul von. 324 Littlefield Bldg., Austin, Tex. ....	Assoc. M.	May 6, 1914
HORSCHEL, Harold Frederick. 310 Woodland Rd., Sewickley, Pa. ....	M.	Jan. 13, 1930
HORTON, Reuben Harland. Executive Director, Philadelphia Business Progress Assoc., Philadelphia (Res., 430 Owen Rd., Wynnewood), Pa. ....	Assoc. M.	Mar. 7, 1921
IMER, Octave William. 64 Briggs Ave., Yonkers, N. Y. ....	M.	Dec. 16, 1929
JENNINGS, Herman Winslow. Designing Engr., Gen. Elec. Co. (Res., 237 Cherry St.), Schenectady, N. Y. ....	Assoc. M.	Jan. 13, 1930
JUDD, Thomas Henry. Res. Engr., The Washington Water Power Co., Box 845, Chelan, Wash. ....	Assoc. M.	July 6, 1920
JULIAN, Oliver Gerold. Catenary Engr., Jackson & Moreland, 115 Ferry St., Hoboken, N. J. ....	M.	Jan. 13, 1930
KADOW, Robert John. Civ. and Structural Engr.; Constr. Engr., Am. Can Co. (Res., 4164 Canal St.), New Orleans, La. ....	Jun.	May 28, 1923
KELKER, James Joseph Arthur. Civ. Engr., The Ohio Oil Co., Marshall, Ill. ....	Assoc. M.	Jan. 13, 1930
KEY, John Clementson. Presidio, Tex. ....	Jun.	Jan. 13, 1930
KIDD, Walter Herbert. Steel Detailer, The Mt. Vernon Bridge Co. (Res., 205 West Chestnut St.), Mount Vernon, Ohio. ....	Jun.	Oct. 14, 1929
KING, Kenneth Kyle. Designing Engr., Fuller & McClinton, 170 Broadway, New York, N. Y. ....	Assoc. M.	Dec. 16, 1929
KINNEY, Ray Donald. Reinforced Concrete Estimator, Knollman-Spiled Fireproofing Co. (Res., 3812 Beecher St. N. W.), Washington, D. C. ....	M.	Feb. 25, 1924
KISER, Vernon Russell. 4224 Chestnut St., Philadelphia, Pa. ....	Jun.	Jan. 13, 1930
KURTZ, Adolph Lawrie. Designing Engr., Fuller & McClinton, 170 Broadway, New York, N. Y. ....	Assoc. M.	April 19, 1920
LAUENSTEIN, Carl Albert. Asst. Engr., Spring Valley Water Co. (Res., 1700 Beach St.), San Francisco, Calif. ....	M.	Jan. 13, 1930
LEACH, Donald Allen. Structural Engr., Chicago Bridge & Iron Works, 30 Church St., Suite 1917, New York, N. Y. ....	Assoc. M.	Jan. 13, 1930
LIND, Herbert William. Computer, Gibbs & Hill, New York (Res., 734 East 9th St., Brooklyn), N. Y. ....	Jun.	Jan. 13, 1930
LUFFMAN, Thomas Francis. Sales Engr., Albert Oliver & Sons, Inc., 711 East 104th St. (Res., 91 East 208th St.), New York, N. Y. ....	Jun.	Dec. 16, 1929
MCARREL, Arthur Hicks. Textile Expert, U. S. Tariff Comm., Washington, D. C. ....	M.	Jan. 13, 1930
MALMSTROM, Ivar Theodore. Care, Stone & Webster, Bagnell, Mo. ....	Jun.	Dec. 16, 1929
MANATT, Rowland Rodney. Care, Atlantic, Gulf & Pacific Co., 15 Park Row, Room 2405, New York, N. Y. ....	Assoc. M.	Nov. 11, 1929
MAZEAU, Marcel Adrian. City Engr., City Hall, South Jacksonville, Fla. ....	Assoc. M.	Jan. 13, 1930
MITTAG, Albert Alfred. General Delivery, Ancon, Canal Zone. ....	Jun.	June 7, 1926
MYERS, Francis Murdock. Estimating Dept., Hegeman Harris Co., Inc., 360 Madison Ave. (Res., 60 West 58th St.), New York, N. Y. ....	Assoc. M.	Nov. 11, 1929
NEALE, John Arthur. Chf. Engr., The Chicago Board of Underwriters, 175 West Jackson St., Room 2158, Chicago, Ill. ....	Jun.	Jan. 13, 1930
NOBES, Herbert Eric. 580 West 161st St., New York, N. Y. ....	Assoc. M.	Oct. 12, 1925
O'BRIEN, Edward Francis. Constr. Engr., Office of Superv. Archt., Treasury Dept., Room 416, Post Office Bldg., Brooklyn, N. Y. ....	M.	Jan. 13, 1930
O'BRIEN, Morrough Parker. Asst. Prof., Mech. Eng., Univ. of California, Berkeley, Calif. ....	Jun.	Oct. 14, 1929
	Affiliate	Dec. 16, 1929
	Assoc. M.	July 12, 1926
	Assoc. M.	Dec. 16, 1929

MEMBERS—(Continued)		Date of Membership
PEARCE, John Edwin. Designer, Standard Oil Co. of New Jersey, 135 Madison Ave., Elizabeth, N. J.	Jun.	Dec. 16, 1929
PHILLEO, Rolland Alson. Draftsman, Ambridge Plant, Ambridge Co. (Res., 718 Maplewood Ave.), Ambridge, Pa.	Jun.	Jan. 13, 1930
PHILLIPS, Preson Peek. Designing Engr., Gilbert C. White Co. (Res., 905 Dacian Ave.), Durham, N. C.	Assoc. M. M.	June 7, 1926 Jan. 13, 1930
RADER, Alfred. Asst. Engr., Bureau of Bldgs., Municipal Bldg. (Res., 2463 Elmwood Pl.), Brooklyn, N. Y.	Assoc. M.	Jan. 13, 1930
RIESBOL, Herbert Spencer. Junior Engr., Chicago Bridge & Iron Works (Res., 9953 Longwood Drive, Washington Heights Station), Chicago, Ill.	Jun.	Nov. 11, 1929
RILEY, Charles Russell. 446 Walnut St., Grafton, W. Va.	Jun.	Oct. 14, 1929
ROBERTS, Alfred Vaile. Junior Asst. Engr., Honolulu Sewer and Water Comm. (Res., 2447 Prince Edward St.), Honolulu, Hawaii.	Assoc. M.	Nov. 11, 1929
ROUNDS, Will Arthur. Engr., Continental Oil Co. (Res., 3225 University Drive), Fort Worth, Tex.	Jun.	Nov. 11, 1929
ROUNER, Thomas Jefferson. Engr., Executive Dept., New England Power Co. and International Paper & Power Co., 89 Broad St., Boston, Mass.	Jun.	Jan. 17, 1927
RUSSELL, George Silas. Cons. Engr. (Russell & Axon), 6200 Easton Ave., St. Louis, Mo.	Assoc. M. M.	Dec. 16, 1929 Oct. 14, 1929
SAWYER, Joshua Stewart. Mgr., Asphalt Dept., Shell Oil Co., 200 Bush St., Room 1001, San Francisco, Calif.	M.	Jan. 13, 1930
SCHALSCHA, Walter Gilbert. Secy., Union Iron Works, Hoboken, N. J.	Assoc. M.	Nov. 11, 1929
SEGOE, Ladislas Walter. City Planning Consultant, 1107 Traction Bldg., Cincinnati, Ohio.	Assoc. M. M.	Dec. 3, 1926 Jan. 13, 1930
SKAFTE, John Egon. 259½ Isabel St., Los Angeles, Calif.	Jun.	Oct. 14, 1929
STAMLER, Charles John. 2601 Jerome Ave., New York, N. Y.	Jun.	Jan. 13, 1930
SYLVESTER, Harold MacTavish. 2d Lieut., C. E. C. U. S. N., Public Works Dept., 16th Naval Dist., U. S. Naval Station, Cavite, Cavite, Philippines Islands.	Jun.	Nov. 11, 1929
TARRALL, Mahone Taylor, Jr. Field Engr., Virginia Culvert Corporation, Richmond (Res., 1315 Colonial Ave., Norfolk), Va.	Jun.	Oct. 14, 1929
THOMPSON, Sophus. Asst. Prof., Civ. Eng., Southern Methodist Univ., Dallas, Tex.	Jun.	July 15, 1929
THOMPSON, Tazewell Franklin. Asst., Eng. Corps, B. & O. R. R., Div. Engr.'s Office (Res., 78 East 7th St.), Chillicothe, Ohio.	Jun.	Dec. 16, 1929
TURNQUIST, Elver Richard. 307 Jerome St., Midland, Mich.	Jun.	Dec. 16, 1929
VENTRE, Fred Vincent. 902 South 49th St., West Philadelphia, Pa.	Jun.	Nov. 11, 1929
WARLOW, Earnest Judson. 801 Gorsuch Ave., Baltimore, Md.	Jun.	Jan. 13, 1930
WEBB, Chauncey Earl. Designing Engr., Bridge Dept., Chicago Office, Am. Bridge Co., 208 South La Salle St., Chicago, Ill. (Res., 346 Cleveland St., Gary, Ind.)	Jun.	Dec. 31, 1913
WIETERS, Alfred Henry. Chf., Div. of San. Eng., State Dept. of Health, Des Moines, Iowa.	Assoc. M. M.	Jan. 17, 1921 Jan. 13, 1930
WILLIAMSON, Edwin Paul. 2148 O St. N. W., Washington, D. C.	Assoc. M. M.	May 8, 1922 Jan. 13, 1930
WOODRING, Philip Wendell. Laboratory Asst., State Dept. of Highways Testing Laboratory, 217 South Cameron St. (Res., 2572 Lexington St.), Harrisburg, Pa.	Jun.	Oct. 14, 1929
WRONIEWICZ, Vincent Stanley. 9 Fairmount Ave., Yonkers, N. Y.	Jun.	Oct. 14, 1929

### Reinstatements

MEMBERS	Date of Reinstatement
JAMES, William Atlee.	Jan. 8, 1930
MANN, John Laroy.	Jan. 22, 1930

### Associate Members

CHAPMAN, Ronald Farquhar.	Jan. 22, 1930
LEMBERGER, Otto.	Jan. 22, 1930

### Juniors

FISK, William Bryan.	Jan. 27, 1930
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### Resignations

MEMBERS	Date of Resignation
SCHLUMPF, Oscar Leonard.	Jan. 21, 1930
SKINNER, Theodore Hobart.	Jan. 20, 1930
WOODSON, James Baker.	Jan. 16, 1930

## RESIGNATIONS—(Continued)

ASSOCIATE MEMBERS		Date of Resignation
CLACK, James Morgan.		Jan. 21, 1930
COBB, Stephen Prentis.		Jan. 8, 1930
FERRER, Manuel Rivera.		Jan. 8, 1930
GOODWIN, Albert Edward.		Jan. 4, 1930
HARLEY, George Foster.		Jan. 9, 1930
POST, William Louis.		Jan. 13, 1930
RICHEY, Charles Wilson.		Jan. 8, 1930
ROSE, William Henry.		Jan. 7, 1930
SEKIBA, Shigeki.		Jan. 29, 1930
JUNIORS		
BELING, George Norman.		Jan. 7, 1930
BENEDICT, Arthur Harold.		Jan. 7, 1930
ENKE, Glenn La Vine.		Jan. 31, 1930
FOWLER, Henry Charles, Jr.		Jan. 16, 1930
JENKINS, Kendall Reed.		Jan. 8, 1930
MILLER, John Lloyd.		Jan. 8, 1930
NICKLE, Harry Gordon.		Jan. 9, 1930
PETERSON, Aldor Cornelius.		Feb. 1, 1930
SUGG, Glenn Edward.		Jan. 7, 1930
VAN VALIN, Huestis Brown.		Feb. 3, 1930
AFFILIATES		
BROWNLOW, Louis.		Jan. 8, 1930

## Deaths

ASHMEAD, Frank Milligan. Elected Member, July 6, 1887; died December 7, 1925.  
 DOW, Daniel Frederick. Elected Member, November 15, 1926; died December 29, 1929.  
 GROSS, Daniel Wingerd. Elected Associate Member, May 1, 1901; Member, June 24, 1916; died January 23, 1930.  
 HOLGATE, Henry. Elected Member, October 2, 1901; died January 22, 1930.  
 KWONG, King Yang. Elected Member, April 1, 1908; died October 19, 1929.  
 RIFFLE, Franklin. Elected Member, November 7, 1888; date of death unknown.  
 RIX, Edward Austin. Elected Member, April 7, 1897; died January 8, 1930.  
 TAYLOR, Harry. Elected Member, October 7, 1896; died January 27, 1930.  
 TIFFANY, Walter Checkley. Elected Associate Member, October 12, 1925; died December 9, 1929.  
 WOLVERTON, Irving Mason. Elected Associate Member, December 4, 1895; Member, December 1, 1903; died January 6, 1930.

## Total Membership of the Society, February 4, 1930

Members .....	5 650
Associate Members.....	6 027
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Corporate Members.....	11 677
Honorary Members.....	18
Juniors .....	2 296
Affiliates .....	143
Fellows .....	7
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Total.....	14 141